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OF

GOTHIC ARCHITECTURE

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OF

GOTHIC ARCHITECTURE

WITHDRAWN

BY

CHARLES HERBERT MOORE

WITH ILLUSTRATIONS

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By CHARLES HERBERT MOORE

PREFACE

In the following attempt to set forth the development and character of Gothic architecture, I use the term "Gothic," because it has been established by custom to designate the architecture of the late Middle Ages as distinguished from that of ancient and early mediæval times; and because, since it was owing to the infusion of Northern genius that the style was brought into being, it is not an entirely inappropriate term. But I use it in a restricted sense; confining it to that style of the Middle Ages which was most distinctly a mediæval product. In thus restricting the term, I am forced to exclude the greater part of what has usually been called Gothic architecture, because of its failure to exhibit those qualities of design and construction which are distinctive. The general term *pointed architecture* will suffice to include those inferior works which have been hitherto erroneously classed with Gothic. The position to which my study of the subject has led me differs considerably from that which has hitherto been maintained, especially by English writers. (In the works of the true Gothic style a noble and well-conceived original design is carried out systematically, with strict logic of construction, with thorough regard to mechanical and statical principles, and with a controlling sense of beauty.) They are works of the highest art, in which the understanding of technical methods is so complete as to serve as the secure foundation for the creations of the poetic imagination. It will, doubtless, seem

to readers already more or less familiar with the subject an extravagant position that Gothic architecture, as I define it, was never practised elsewhere than in France. Yet from this position I can see no escape.

The French origin of Gothic is, indeed, now pretty generally admitted on the continent of Europe; but the exclusive claim of the architecture of France, in the Middle Ages, to be called Gothic has not thus far, so far as I know, been advanced. This being the case, nothing short of a close analysis and comparison of the different pointed styles of Europe—a work which, strange as it may seem, appears not before to have been undertaken—could be expected to establish a view so different from that which commonly prevails. I have, therefore, been impelled to undertake an examination of the architecture of the twelfth and thirteenth centuries in Europe, and I have endeavoured in this essay to illustrate the results of this examination in a clear and intelligible manner, and in such a way that, so far as might be, the monuments should speak for themselves. This examination I have made, for the most part, at first hand, except in regard to the architectures of Germany and Spain, my acquaintance with which is through books and photographs only.

The main conclusions of the book may, I fear, be unwelcome to many English readers who have regarded Gothic architecture as a no less English than continental product. But though, as I believe, the English claim to any share in the original development of Gothic, or to the consideration of the pointed architecture of the Island as properly Gothic at all, must be abandoned, there is yet abundant reason for English satisfaction in English architecture, as one of great nobleness and beauty, whose monuments can hardly be too highly prized or too zealously protected. And if the French monuments are found to be still more marvellous and beautiful, and to be the result of an earlier and more independent development, and even to have furnished the chief

inspiration for what is best in England, these facts will, of course, be acknowledged with generous frankness so soon as they are seen to be established.

The idea has widely prevailed, and does still prevail, that Gothic was an art common to the nations of the North, and each country has in turn laid claim to superiority of style. This idea, as I endeavour to show, is incorrect, and has arisen largely from a lack of clear analysis of the true Gothic style, and from the habit of classing together, as if they were all of the same nature, various forms of pointed architecture which resemble each other only superficially. The peculiarities exhibited by the different countries have hitherto been taken merely as local variations of this supposed common style; and hence it has become usual to speak of French Gothic, of English Gothic, and of German Gothic, as if these various styles were all equally Gothic. Some writers have, in recent times, gone further, and have claimed for the countries, to which they have respectively belonged, the original invention of Gothic. Thus Rickman begins his well-known and valuable essay[1] by saying: "The science of architecture may be considered in its most extended application to comprehend buildings of every kind; but at present we must consider it in one more restricted, according to which architecture may be said to treat of the planning and erection of edifices, which are composed and embellished after two principal modes: (1) the antique, or Grecian and Roman; (2) the English or Gothic." Some German writers have maintained with equal assurance that to German genius is due the origin and development of Gothic; while the French, though generally manifesting a preference for their own style, have perhaps made no greater claim than either the English or the Germans to its original authorship.

These various and conflicting views have retarded a true understanding of the arts of the Middle Ages; and they have naturally tended to strengthen the disesteem with which, in

[1] "An Attempt to Discriminate the Styles of Architecture in England."

some quarters, since the time of Vasari, the Gothic style has been regarded. While the whole pointed architecture of Europe is taken together as Gothic, it is not strange that it should appear as an art without principles. But so soon as the principles of the true style are understood, and comparison of the architectures of the different countries is made by the light of them, the origin and exclusive existence of Gothic in France will be readily discerned.

It has been necessary to devote a considerable portion of the book to detailed descriptions of structural forms and adjustments. These may prove tedious to the unprofessional reader ; but I have endeavoured to make them as brief as was consistent with thoroughness, and to express myself, as far as possible, in terms that may be generally understood.

The illustrations to the book have been reproduced either on wood or by mechanical process from drawings, the most of which were made on the spot, or from photographs, by myself. For some of the illustrations of sculpture the drawings have been made from photographs either by my daughter, or by myself ; and several of the most elaborate illustrations of entire buildings have been drawn from photographs for the engraver by Mr. H. W. Brewer of London, the well-known architectural draughtsman.

I am indebted for help in gathering materials, and in other ways, to the kindness of many persons ; but most especially to M. l'Abbé Müller of Senlis, to the Very Reverend William Butler, Dean of Lincoln, to my architect friends, Messrs. A. H. Mackmurdo of London, and W. P. P. Longfellow and C. A. Cummings of Boston, Massachusetts, to my friends, Professor George H. Palmer and Mr. Wm. C. Lane of Cambridge, Massachusetts (the latter of whom has prepared the index), and, above all, to my friend, Professor C. E. Norton of Cambridge, Massachusetts, without whose critical revision I should hardly have wished to publish the book.

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CHAPTER I

DEFINITION OF GOTHIC

SINCE the decline of Gothic architecture the ideas which have prevailed respecting it have been for the most part confused and incorrect. Indeed, until within the last fifty years only the most vague notions of it were entertained even by students of architecture. The very name Gothic, though not wholly inappropriate, originated in a spirit of contempt, which naturally precluded any disposition to study attentively enough to understand it, this splendid manifestation of human genius. The architects and amateurs of the schools of Sansovino and Palladio in Italy, where the revival of taste for classic forms of art had set in as early as the time of Brunelleschi, could not be expected to admire anything so far removed from the spirit of the art which was in fashion with them. The *maniera Tedesca*, as they called such Gothic as they possessed—supposing Gothic art to be of German origin, because their own pointed style was an importation from Germany—was regarded by them as barbaric and without principles, in comparison with their grammatical Vitruvian orders. It was not unnatural that such distaste for the pointed style should be felt in Italy, for the style was foreign to Italian genius and Italian traditions. It had been adopted merely as a fashion, and the very modifications which the Italians wrought in it show how little suited it was to their wants. It is, indeed, impossible for a people possessed of an art, which is a natural outgrowth of their wants and tastes, and hence proper to them, to adopt and practise rationally, and to make their own, another art which is an outgrowth of other and different needs and predilec-

tions. The Greek and Roman types of building were not only the natural inheritance of the Italians, but they were the best for them as being suited to their climate and as supplying all their demands of convenience and taste.

On the north and west of the Alps the case was different. Here the traditions of classic art were not, in the same sense, an inheritance. The ancient forms of building had here been an importation. They had never here been wholly understood, and they were not well suited to the conditions of climate and of race. But the Gothic style which gradually took form in France was a natural outgrowth and expression of the genius of the people, and it was as well suited to them and to the local conditions as the classic styles had been to the people and the climate of the South.

Yet here, too, at length, the fashion of distaste for Gothic set in — following the lead of the more natural Italian reaction, — though the change did violence to much that in architecture was proper to Northern temperament and Northern needs.

This fashion had its root in the prevalent, yet often insincere, feeling characteristic of an artificial state of society, such as that which Northern Europe, and especially France, exhibited at the end of the fifteenth century, — a state of society in which display of private wealth and pleasurable indulgence became the chief animating motives of an art that found its main expression in vast and luxurious private dwellings. In the former time private dwellings, even those of the rich, had been comparatively unpretentious and plain in character, while the Church edifice, the great centre of social and communal interest, and the product of the joint energy and enthusiasm of all classes, had been enriched by generous expenditure of toil and public and private treasure, but now it was the dwellings of the rich that chiefly demanded the services of art. The ambition of Charles VIII to possess a palace equal in splendour to those which he had seen in Italy, indicates the early stage of a movement which, gathering force under Francis I, and greatly stimulated by the genius of De L'Orme, reached its height in the sumptuous architecture of the reign of Louis XIV.

The taste for the new style was long confined to the

upper classes. This architecture could never become really an architecture of the people; and the cities and, here and there, the church held out against it. But with the growth of artificial conditions the new fashion at length prevailed, and under its influence it was not strange that the Gothic monuments of the country were not only neglected and despised, but shamefully, and often irreparably, disfigured.

In England the taste for the pseudo-classic orders, fostered by the genius of such men as Inigo Jones and Wren, was not less hostile to Gothic. Any feeling for mediæval forms which had lingered on through the Elizabethan period was soon effectually quenched. Germany, though not quick to accept the Renaissance style, was also at length conquered by it. Everywhere some form, though often a travesty, of the revived classic taste prevailed. Gothic art became everywhere extinct.

Fashion, however, began after a while to change. In the course of the eighteenth century an antiquarian interest in pointed architecture was awakened and received a considerable stimulus from the zealous but ignorant advocacy of Horace Walpole. The attention of amateurs began to be directed towards existing monuments, and the publication (1780-1795) of Carter's volumes with measured drawings, followed before long by the works of Britton and Pugin, created an extensive, though not a discriminating taste for the long-abandoned pointed style. So undiscriminating, indeed, was this new interest that it long remained unproductive of good results. No just notion of the nature of Gothic was anywhere entertained. That it involved principles beyond those which were revealed to a superficial view nobody yet imagined. The whole subject of the modifications and transformations which pointed architecture had undergone at different periods in its history was shrouded in obscurity. No correct classifications had been made, and attention was, for the most part, directed to the later and least excellent varieties. Before there could be progress toward a true understanding of pointed buildings, it was necessary that the different forms which they had assumed should be examined and classified.

But at length this progress began. In the year 1817 appeared Rickman's first essay—*An Attempt to Dis-*

criminate the Styles of Architecture in England. This book did much to clear up the confusion that had prevailed, by pointing out that the differences of style which appeared in the English monuments might be broadly divided into three groups belonging, respectively, to three successive periods of construction. And, although Rickman's work was naturally imperfect and inadequate, its classifications were mainly correct, and it has served as a substantial basis for all subsequent study of the pointed architecture of England. So good was it, however, that the many other treatises which soon after appeared did little more than extend the field by bringing a larger number of buildings into notice. Professors Whewell and Willis, however, deserve to be mentioned as learned and able investigators who must always command the respect of students of architecture. Whewell, in his *Notes on German Churches*, did much to systematise methods of observation, and Willis, in his *Architecture of the Middle Ages*, and in his *Essay on Vaulting*, has given us a more thorough analysis of constructive systems than any other English writer, and has also rendered acknowledged service to the most able writers of the Continent. But neither of these authors succeeded in bringing out with clearness the essential principles of Gothic.

In the year 1851 was published Sharpe's *Seven Periods of Church Architecture*, which showed that Rickman's division of styles might be subdivided. But beyond this Sharpe did nothing to invalidate the correctness, in broad outline, of Rickman's work. As regards the true nature of Gothic, Sharpe himself, though a writer of much merit, did not possess a true conception. For he says, referring to the commonly received distinction between Romanesque and Gothic, which is merely that one employs round, and the other pointed arches, that he has "little hesitation in adopting this primary division as the groundwork" of his system.[1] And in his various other works, excellent as they are in many ways, he everywhere treats the subject of Gothic design as consisting merely in this and other peculiarities of detail. Of the considerable number of more recent English writers on Gothic art few, if any, have contributed towards a more just

[1] *Seven Periods of Church Architecture*, p. 4.

apprehension of its principles. English writers generally have understood by Gothic merely a style of building in which pointed arches take the place of round ones, and in which mouldings and other details are treated in a peculiar way. Hence, in treating of the evolution of Gothic, English writers, with hardly an exception, confine themselves to the consideration of these subordinate things. Even Sir Gilbert Scott, who has shown more insight than most others, quite fails to lay hold of the ruling principles and to exhibit them with clearness. And his son, Mr. G. G. Scott, even describes [1] incidentally some of these principles without emphasising them as fundamental.

A recent Belgian writer, regarding the subject from the English standpoint, has published a book,[2] in which it is assumed that Gothic consists in a purely decorative modification of the component members of a building. These members — capitals, bases, mouldings, etc. — he examines without due reference to their mutual adjustments and functional offices, and considers that the more they differ decoratively from corresponding members in the preceding styles, the more Gothic they are. For standards of Gothic form he points to those buildings in which such details depart most widely from the Romanesque types. And others which, in these features, retain the older characteristics he affirms to be on that account not Gothic.

In France the history of the revival of interest in Gothic seems to have derived its impulse from an influence transmitted from England. One of the earliest French writers to show an intelligent interest in the subject was M. de Caumont, who, however, equally with the authors already named, misconceives the nature of Gothic art. Thus, in treating of the transition, he says: "La révolution architectonique qui s'opérait durant la période transitionnelle ne consistait pas seulement dans la substitution de l'ogive au plein-cintre, mais aussi, comme nous le démontrerons, dans l'adoption d'un système nouveau de moulures pour la decoration, et dans l'abandon de la plupart des ornaments usités aux XI^e^ et XII^e^ siècles." [3]

[1] *History of Church Architecture*, p. 141.

[2] *La Filiation généalogique de toutes les Écoles Gothiques.* Par Jean-Francois Colfs. Paris, 1882.

[3] De Caumont, *Architecture Religieuse*, p. 387.

These conceptions of the nature of Gothic are inadequate. It is not by the consideration of such structurally unessential features that an understanding of the subject can be reached.

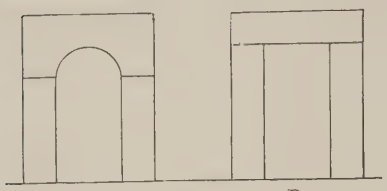

FIG. 1.

By such approach it would be impossible to discover the principles of any art. The principles to be considered are constructive principles. They determine the nature and govern the entire fabric of every art. In architecture they are pre-eminently fundamental. In architecture mere forms apart from their functional offices and relations are not enough to enable us to apprehend the distinctive characteristics of styles. Semicircular forms instead of straight beams may, for instance, be used to bridge the spaces between the upright supports of a building without a result which would constitute between a building employing the latter form and one employing the former, a difference of architectural style. For an arch may be cut out of a single stone, as at A, Fig. 1, as it frequently is in the buildings of Central Syria,[1] where the constructive principle is, of course, that of the plain lintel, as at B, Fig. 1. Or the arch may be built up in horizontal courses of small stones, and thus be what is known as the offset arch (Fig. 2), like the gate of Ephesus, which is still on the principle of the lintel. It is not until the arch is constructed of separate stones cut into the shapes of *voussoirs*, when it comes to exert a lateral thrust which requires to be met by some opposing force, that we have a new con-

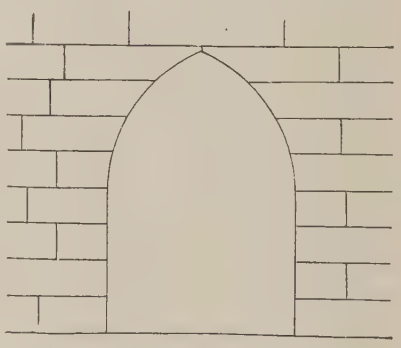
FIG. 2.

[1] See *L'Architecture civile et religieuse du I^er^ au VII^e^ siècle dans la Syrie centrale.* Par M. Le C^te^ de Vogüé. Paris, 1865-1877. The Basilica of Mondjelia, described on p. 98, presents in its nave arcades a singularly systematic use of monolithic arches. At first glance one would naturally pronounce the construction Romanesque. It is not until we scrutinise the joints of masonry that the trabeate principle of its construction is perceived.

structive principle, the systematic employment of which in architecture constitutes a new style.

In a secondary sense, indeed, it may be admissible to speak of differences of style where there are no differences of constructive principle. Egyptian architecture is, in this sense, a style different from Greek, and arched Roman is a style different from Romanesque. The Romanesque may be broadly divided into two styles—the Eastern and the Western ; and the variety of Western Europe may be said to be of one style in North Italy, of another in Southern Gaul, of another in Normandy and England, etc. While of pointed architecture it may be said that there are differences of style, or rather that there are many varieties, some of which are nearer to, and some more remote from, the type which alone is strictly entitled to be called Gothic. But it is only in a secondary sense that it is correct to speak thus of styles in which there are no fundamental structural differences. Pointed architecture is not, in the strict sense, a style distinct from that which is round arched ; for pointed arches in apertures do not much differ structurally from round ones. Gothic architecture differs from Romanesque far more fundamentally than by the use of pointed arches in place of round arches, or by the substitution of one decorative system for another.

In the midst of such imperfect apprehension as has thus far generally prevailed, and as preliminary to what is to follow on the nature and origin of Gothic art, it will be well for us to seek a clear and unmistakable definition of it, in order that we may have a standard whereby to estimate the degrees of Gothic quality that may appear in the pointed architecture of different countries and at different epochs. Such a definition is afforded in the monumental work of M. Viollet-le-Duc, the *Dictionnaire Raisonné de l'Architecture Française*. He has therein given a profound and exhaustive illustration of Gothic. He has shown that Gothic architecture came into being as a result of the development of a new constructive system of building. A system which was a gradual evolution out of the Romanesque ; and one whose distinctive characteristic is that the whole character of the building is determined by, and its whole strength is made to reside in a finely organised, and frankly confessed, framework, rather than in walls. This framework, made up of piers,

arches, and buttresses, is freed from every unnecessary encumbrance of wall, and is rendered as light in all its parts as is compatible with strength in a system whose stability depends not upon any inert massiveness, except in the outermost abutments, but upon a logical adjustment of active parts whose opposing forces produce a perfect equilibrium. It is thus a system of balanced thrusts, as opposed to the former system of inert stability. Gothic architecture is indeed much more than such a constructive system, but it is this primarily and always. And so fundamental and far-reaching is this mode of construction as the distinctive principle of Gothic, that it may be taken as a rule that wherever we find it developed there we have a Gothic building, even though the decorative system connected with it may retain many of the Romanesque characteristics. And, on the other hand, wherever this principle of thrust and counterthrust is wanting there we have not Gothic, however freely the pointed arch may be used, and however widely the ornamental details may differ from Romanesque types.

The evolution of the Gothic system was gradual, and the final results were unforeseen when the first steps were taken. This is evident from the characteristics exhibited by the transitional monuments which remain. The first steps were taken early. Indeed, the beginnings of Gothic antedate considerably the period which is usually assumed as that of transition. The earliest functional grouping of supports in the churches of Northern Italy was, it would seem, the real beginning; though it was a beginning that was destined to remain unfruitful in its own locality. But there is reason to suppose that the Lombard buildings[1] of the early eleventh

[1] By Lombard buildings it is not necessary to understand buildings erected by the Lombards. The existence at the present time of work actually wrought by Lombard hands has been clearly disproved, and the designation Lombard, as applied to the churches of the eleventh century in North Italy, has been, therefore, objected to. But the style of these buildings is undoubtedly the result of Lombard influence, though the date of their erection was subsequent to the Lombard occupation. The conclusion reached by Sig. Quintino and others who have treated the subject, that the architecture in question is derived wholly from Roman and Byzantine sources, is certainly incorrect. For nowhere in either Roman or Byzantine design is there any precedent for that functional grouping of shafts and piers that is met with in buildings like San Michele of Pavia, and St. Ambrogio of Milan. The fact would seem to be that the Lombard influence upon architecture was strong enough to outlive the period of actual Lombard sojourn. After two hundred years of settlement the influence of such a people could hardly fail to have become in a measure permanent.

century were the sources from which the Normans derived a large share of their architectural inspiration. A comparison of the Church of San Michele of Pavia with that of the Abbaye-aux-Hommes of Caen would alone suggest this, even if we did not know that Lanfranc, who was Abbot of the Monastery when this church was building, had come from Pavia. The rudimentary principles of structure embodied in the churches of Lombardy seem to have been thus transmitted to the North, where they were rapidly developed, so that from San Michele of Pavia to the Cathedral of Amiens a logical and progressive series of changes may be traced.

Gothic architecture is thus in no sense an independent, though it is a distinct style. And hence it is not strange that the finest Gothic buildings should retain, as they do, many traces of the Romanesque elements out of which they were evolved. It is a mistake to suppose with M. Colfs that such lingering of older elements necessarily marks a building as wanting in Gothic character. On the contrary, such elements are natural to Gothic, which is an art not only derived from Romanesque, but which *is* Romanesque recreated. Every constructive member of a Gothic building exists, in rudimentary form, in a vaulted Norman building. Even the osseous system which distinguishes Gothic exists there in potency. But the creative principle of the new style is not in Norman art yet recognised, and the structural system does not yet frankly and independently exercise its functions.

It may help us to gain a more complete idea of Gothic briefly to review some of the steps in the process by which the transition was effected. And we may advisably begin with the first principles of arched construction.

I have already alluded to the fact that a new principle was introduced into the art of building when the arch exerting side thrusts was first employed. The most effective way to meet such thrusts is by some kind of external abutments. But the thrusts of arches may also be neutralised by downward pressure upon the walls where they operate. Both methods were employed by the Romans and by the Romanesque builders, as well as by the Gothic architects. In the case of a simple arched opening in a wall the thrusts are, of

course, stayed in both of these ways. The lateral masses of wall act as buttresses, and the superincumbent masonry tends to overcome the side pressure by its weight. Where a space between two parallel walls is roofed over by a barrel vault the continuous side pressures, which would tend to overthrow the walls, are, in Roman constructions, met by thickening the walls enough to resist the thrusts—the extra thickness given for this purpose forming a continuous abutment. The walls in Roman buildings are also sometimes weighted by heavy masonry above the springing of the vaults. In Roman buildings of several stories, such as the Flavian amphitheatre (section, Fig. 3), the walls of the lower stories are enormously thick, and the vault pressures are further stayed by the weight of the walls above. The top story has no vault, and the weight of its thinner wall helps to maintain the stability of the vault below. By such massive masonry employed in this double way, the pressures of Roman vaults are much more than met. In the case of Roman intersecting vaults, like those of the Basilica of Constantine, the thrusts, instead of being continuous, as in the foregoing instance, are concentrated upon those points (*a*, plan, Fig. 4) from which the groins spring, where they are met by walls set across the aisles and dividing them into separate compartments. These walls are, of course, true buttresses in disguise. The compartments of the aisles are covered by barrel vaults springing from the dividing walls, and thus, having their axes at right angles to the side walls of the building, they exert no thrust upon these side walls, and consequently no external stays are required. Thus the buttress employed by the Romans was not a buttress pure and simple, devised to meet a side pressure with economy, as well as efficiency, and openly confessed as a functional member. They always contrived to arrange the plans of their buildings so that some of the enclosing or

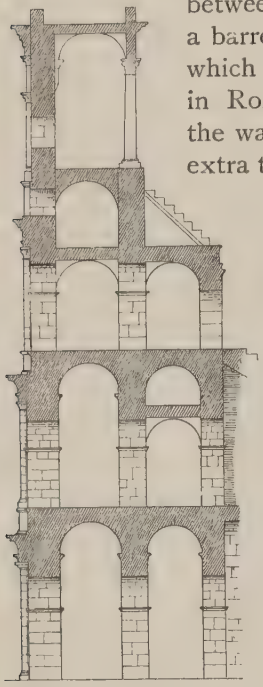

FIG. 3.

dividing walls should act as stays to their vaults,[1] or else they resorted to the methods before noticed of employing such

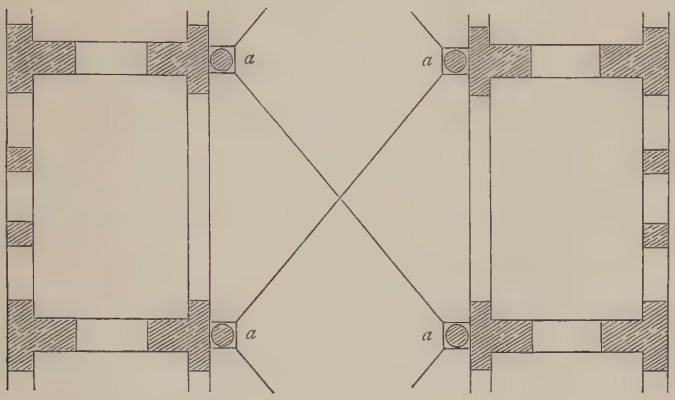

FIG. 4.

vast thickness of wall as to secure stability by sheer inertia of material.

The Romanesque builders went a step farther in the development of the buttress, in accordance with their general progress in the art of construction. They at first placed a pilaster strip on the outside of the wall against the pressure that was to be met, treating it as a distinct functional member (Fig. 5). It is true that the Romans had employed engaged columns in the same positions, but they had employed them for a decorative purpose only. And even in early Romanesque constructions the pilaster strip had little more than a decorative value. It did, indeed, stiffen the wall somewhat, — this was the reason for its use, the walls of Romanesque buildings not having the great thickness that was common in Roman walls,—but it had not projection enough to bear much vault pressure. It had, however, rarely to meet such pressure, except in the aisles

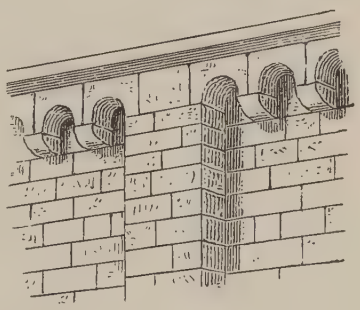

FIG. 5.

[1] See August Choisy, *L'Art de Batir chez les Romains*, p. 93, *et seq.*

where the vaults were of no great span. But though it was of slight efficiency in vaulted constructions, it yet had great value as marking the place where, in such constructions, additional strength was required by the walls. And in the later Romanesque, as vaulting became more general, the pilaster strip was developed into a true buttress (Fig. 6).

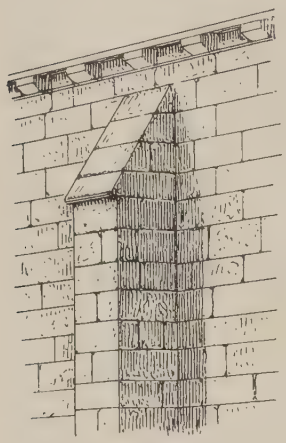

FIG. 6.

A beginning was made in the direction of further progress when the Romanesque builders began to vault their naves. It was then found that the pilaster buttress against the clerestory wall was not enough to stay vaults of so much wider span than those of the aisles for which a buttress like that shown in Fig. 6 had been adequate. Expedients to augment the resistance of the clerestory buttress were accordingly resorted to which were destined ultimately to yield unforeseen results.

In the Abbaye-aux-Hommes at Caen the forms of the vaults—which date from the early part of the twelfth century, and are among the earliest that were constructed over a nave—were such as to exert powerful thrusts. That is to say, the arches of their groins were curves of low sweep, such as the Romanesque builders had derived from Roman intersecting vaults, and consequently of enormous push. To stay these vaults the expedient was adopted of constructing demi-barrel vaults, springing from the top of the aisle walls, and abutting against the wall of the nave under the aisle roofs (Fig. 7). These demi-vaults were in reality concealed continuous flying buttresses. But they were flying buttresses of bad form, for only a small part of their strength met the thrusts of the vaults, the rest being exerted against the walls, between the piers, where no props were required, and where their effect would have been disastrous had not these walls been of excessive massiveness. The level of the abutment was, moreover, so low that it failed to meet the points where the thrusts were greatest. The precise chronological sequence

of buildings in which the successive improvements on this mode of buttressing were made cannot be traced. But an illustration of the next step is afforded by the Abbaye-aux-Dames (Fig. 8), which seems to have been vaulted somewhat later than the Abbaye-aux-Hommes.[1] In this case, instead of

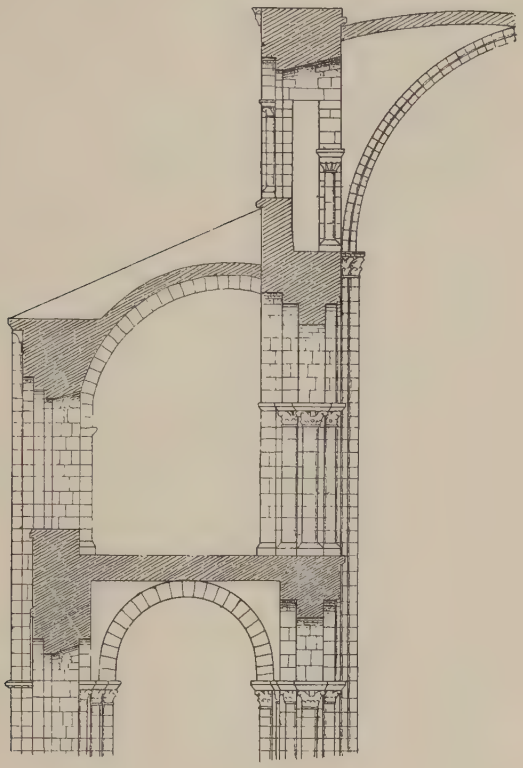

FIG. 7.

a continuous arch, or demi-vault, springing from the aisle wall, separate arches were established, springing from the aisle walls opposite the piers, and abutting against the piers only, where the thrusts of the vaults were gathered. But these arches still fell too low to be wholly effectual, and as the precaution was not taken to reinforce the buttresses of the aisle walls the supports have yielded, and the original

1 See *L'Église Ste. Trinité et l'Église St. Étienne à Caen.* Par V. Ruprich-Robert. Caen, 1864.

vaults have been destroyed. But the same arrangement may be seen in the nave of the Cathedral of Durham where the original vaults remain. Their duration, however, is owing to the enormous massiveness of the construction rather than to the form of the support, which of itself is inadequate. Hence, though an important improvement was attempted in these instances, a satisfactory solution of the problem of the

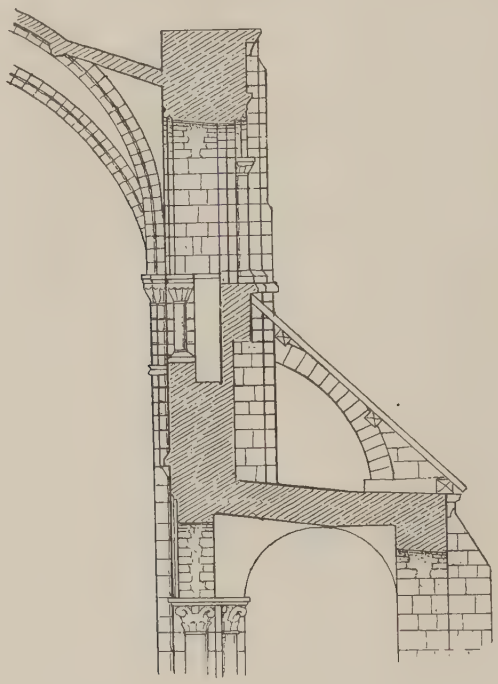

FIG. 8.

buttress was not yet reached. The abutting arches of the Abbaye-aux-Dames and of Durham are indeed true flying buttresses, but they have not the character of such members in Gothic architecture, inasmuch as they are ill adjusted and are not externally apparent.

An advance of no less importance than this buttress development and an integral part of the growing system was the employment of independent arches, or ribs along the lines of the groins, projecting below the vault surfaces and in a measure sustaining them. Here, as in the case of

the buttress, the Romans had employed a kindred principle, though in a most rudimentary way. They had constructed a framework of masonry to give strength to their vaults,[1] but with them this framework was buried in the thickness of the masonry instead of projecting from, or even appearing upon, its surface. It consequently failed to possess the important use of the rib system we are now considering, which, being quite independent of the vaults, serves as a strong centring, and prevents any rupture that may by any chance take place in one cell or compartment of the vault, from communicating itself to others. In addition to this, the employment of an independent support for each rib and arch to be carried—which constitutes the functional grouping of supports above spoken of—completed the structural improvements devised by the Romanesque builders.

We are yet far from the Gothic system. The inert principle of construction, the massive walls, the small apertures, and the horizontal lines of this Romanesque architecture make it still closely akin to the old Roman style. But there are rudiments in it already quickening with latent life, which will completely transform the Romanesque building. The evolution of the Gothic system consisted in gradually perfecting the rudimentary skeleton, so as to make it an independent structure. To every part a complete and independent working efficiency was to be given, and an appropriate artistic, as well as a mechanical value. All this was rendered possible to a far greater degree than it could otherwise have been by the introduction of the pointed arch, not as an ornamental feature in doors and windows, but as a constructive device in vaulting.

The properties of the pointed arch which enabled the Gothic builders to overcome difficulties in vaulting that had before been insuperable are that it exerts a less powerful thrust than the round arch, and that with a given span its crown may be made to reach any level. Its employment in the transverse arches of the vault raised their crowns so that, with arches of full semicircular sweep for the diagonals, the thrusts were greatly diminished. The vaulting of oblong compartments had before been attended with difficulties resulting from the fact that the height of the crown of a

[1] See Choisy, *L'Art de Batir chez les Romains.*

semicircular arch is determined by its span. In vaults over oblong compartments the crowns of the round arches which spanned the narrow sides would not reach the level of those which spanned the longer sides. While if full semicircular arches were used for the diagonals of such vaults their crowns would reach highest of all. Thus in Fig. 9 the height *c d* of the arch *a c b* is less than *f e*, the height of the arch *a f g*, which again is less than *i h*, the height of the arch *a i j*. A vault constructed upon such a system of arches must have an excessively domed form. To obviate this, in part, the expedient was adopted of stilting the narrow arches. The point of their springing was raised to a level considerably above the springing of the greater arches, so as to bring all the crowns nearer to the same height, and thus to reduce the amount of doming required. But even with this modification a vault over an oblong compartment, upon a system of round arched ribs, is excessively heavy, exerts powerful thrusts, and presents an awkward appearance. Oblong groined vaults, though sometimes constructed, were therefore usually avoided by the Romanesque builders, who, indeed, had rarely vaulted their naves, the portion of the building where, in North-Western Europe, oblong compartments most frequently occur. They contented themselves with vaulting the aisles whose compartments were commonly square, and where groined vaults, on round arches, were easily constructed and easily rendered secure.[1]

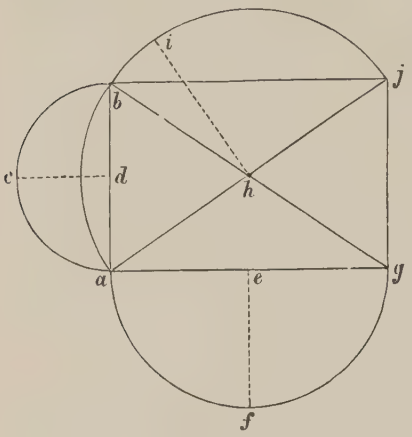

FIG. 9.

The introduction of the pointed arch, however, obviated these difficulties. It now became possible to construct

[1] In Germany the Romanesque builders avoided the difficulties referred to in the text by planning their buildings with square compartments in both nave and aisles. One bay of the nave embraced, in this system, two bays of the aisles. This form, which is of Lombard origin, is the usual form in the Rhenish churches of the twelfth century.

groined vaults over oblong compartments without either doming or stilting, since the crowns of all the arches could be readily brought to the same level whatever their differences of span (Fig. 10).

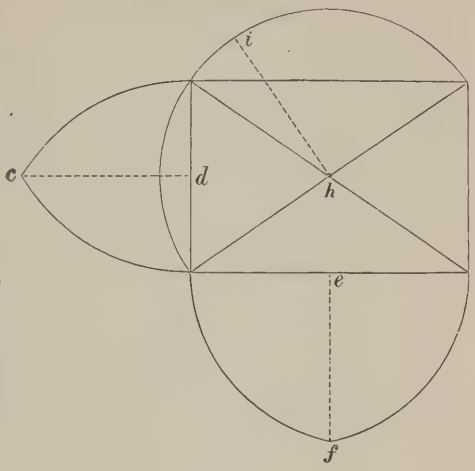

FIG. 10.

But it is important to observe that, in true Gothic, oblong vaults are never constructed upon ribs which all spring from the same level, and whose crowns all reach the same height. Other exigencies, which will be explained in the next chapter, stood in the way of so constructing them. True Gothic vaults are always, to some extent, both stilted and domed. But though full advantage of the pointed arch, in affording any height with any span, could not be taken, its introduction was a great help, and it gave a powerful stimulus to constructive invention.

With the reduced thrust of the vault, secured by the pointed arch, the volume of the external stays could now be much reduced, and new experiments soon led to their better adjustment. The flying buttresses were brought to bear more directly upon the points of greatest pressure, which were found to be at a higher level than those upon which the abutting arches of the Abbaye-aux-Dames and of Durham Cathedral had been brought to bear. In order to reach these points it was necessary to make the flying buttresses spring over the aisle roofs, and thus to become marked external features—as in St. Remy at Reims, St. Leu d'Esserent, St. Germain des Prés at Paris, and a few other early Gothic monuments which still retain their original flying buttresses. The vault ribs and the vaults themselves were now also made lighter. And finally the ribs were more closely grouped at their springing—being made to interpenetrate, more or less, by which means the pressures were concentrated to

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the utmost, while the sustaining shafts and piers, for which the best materials were selected, were reduced to a minimum of thickness. As this development of an independent framework progressed, the intervening walls, now no longer needed for the stability of the fabric, were also reduced in thickness; and the small apertures of the Romanesque style gave place to larger openings, which were gradually more and more enlarged until they filled the entire space between the supports.

The general form and constructive features of a developed Gothic building may be summarised as follows:—

1. The plan consists of a nave, the eastern portion of which forms the choir, with side aisles, sometimes single and sometimes double, and a transept, usually also with aisles. The nave and choir terminate at the east, almost invariably, in either a semicircle or a polygon, around which the aisles are continued. At the west the termination is square, the aisles at this end terminating in towers. The nave is separated from the aisles, and the aisles when double are separated from each other, by rows of piers which support the superstructure. The whole is enclosed, on the ground-story, by a thin wall beyond which, opposite the piers, are the far projecting and massive buttresses.

2. The vaults, whose plan and construction determine the number and arrangement of the piers and buttresses, are furnished with a complete set of ribs —namely, transverse ribs, diagonal ribs, and longitudinal ribs.[1] These ribs are independent arches, of which the transverse and longitudinal ones are pointed, while the diagonals are usually round; and upon them the vault masonry simply rests—the one never being incorporated with the other.

[1] I call the rib which runs parallel with the long axis of the building the longitudinal rib, rather than by its common English name—wall rib—because in true Gothic there are no walls enclosing the ends of the vault compartments. The three ribs named in the text—transverse, diagonal, and longitudinal—are the only *constructive* ribs of any vault, hence they may be said to constitute a complete rib system. The additional ribs, *liernes*, *tiercerons*, etc., which appear in the later forms of vaulting, more especially in England, are mere surface ribs having no real function. The employment of such ribs may be considered a sign of misapprehension of Gothic principles.

3. The ribs spring from slender shafts, compactly grouped, and often detached, though having their bases and capitals incorporated with the great piers which rise from the pavement, through the successive stories, to the nave cornice. Each one of these piers is a compound member consisting of a central body, with which are incorporated all the vaulting shafts, besides the columns which carry the pier arches on the ground-story, and those above which carry the arches of the triforium, and finally the buttress of the clerestory. Upon the piers are concentrated all the side pressures of the vaults, but these side pressures are so neutralised by the buttressing that the piers require only to be massive enough to bear the weight of the vaults.

4. The clerestory buttresses, which receive the thrusts of the nave vaults, are reinforced by flying buttresses springing over the aisle roofs, and rising from the vast outer buttresses, which are incorporated with the respond piers of the aisles.

5. The walls, required for enclosure only, are reduced to a minimum of thickness, and are confined to the ground-story, and to the spandrels of the arcades. The apertures fill the whole space laterally between the piers.

It will thus be seen that the full development of the Gothic system is brought out only where the plan of the building includes a central nave and side aisles. It was in such buildings that the system was evolved. The principle of the prop or brace, which the flying buttress embodies, as contrasted with the inert stay, which the solid Romanesque buttress embodies, is one of the most fecund principles of Gothic construction. By its use, in connection with that of the pointed arch in the ribs of the vault, is the Gothic attenuation of supports rendered possible. A single-aisled building, like the Sainte Chapelle of Paris, or the Chapel of St. Germer, may, indeed, be strictly Gothic as far as it goes. For it may, as these buildings do, consist of a completely functional skeleton, though not a highly organised one, upon which everything else depends. When the system was once developed in

buildings of three or more aisles, it was natural to employ a simpler form of it in the construction of buildings of simpler plan. But it is unlikely that architecture like that of the Sainte Chapelle would ever have come into being had buildings of so simple plan only been required. It was the need of vast stone-roofed churches, such as could not be constructed without aisles, that stimulated the genius of the Gothic builders, and led to the remarkable results that fill us to-day with wonder and admiration.

Such is the structural character of Gothic architecture. But it was not in constructive invention alone that the genius of its builders found expression. Before the time of Gothic art, a genuine artistic aptitude,—an aptitude which found expression in graphic and plastic, no less than in constructive art, had been manifested in the Northern genius. But the painting and sculpture of the Northman were at first rude and uncouth, often extremely so; and this rudeness has been widely held to characterise Gothic art also. But rudeness is by no means a characteristic of Gothic, which is not a product of unmixed Northern genius. For, by the time that Gothic architecture had begun to take form, the mingling of races, that had long been going on, had produced, in the locality where this art first appeared, a people in whose constitution were happily blended some of the finest characteristics of the Latin and Germanic stocks. It was this people who developed the Gothic style and gave to its marvellous constructive system an equally new and appropriate system of adornment. Gothic art is not an art of barbarians, as the pseudo-classicists of the Renaissance would have us suppose. It is far otherwise. It is the art of that civilised people which grew up, through generations of conflict and mutual interchange of thought, out of the fusion of Northern and Southern blood. This fusion produced a superior artistic race,—a race in which the genius of the North supplied an active imagination and a daring spirit of invention, while that of the South supplied a disciplined feeling for beauty and the traditions of ancient art.

The artistic genius of the Gothic builders showed itself not only in the proportions[1] of the great masses and com-

[1] Though they wrought with a fine sense of proportion, there is, I think, no reason to suppose that the mediæval architects were governed by mathematical

ponent details of their monuments, but in the wealth of sculpture and painting with which they adorned them. Both of these arts were employed as auxiliaries; but it was sculpture rather than painting that received the highest development. Not that the Gothic artists had less aptitude for painting. Traces enough of their painting, and a vast wealth of manuscript designs, remain to show their capacity in this direction. But painting could hardly reach any full development in connection with a system of architecture which presented so little wall space whereon to paint, and which so strictly required, in the auxiliary arts, an absolute subjection to architectural expression. The art of producing brilliantly-coloured designs in glass to fill the vast openings of the new architecture was, indeed, a kind of painting, which the Gothic artists made peculiarly their own, and developed magnificently. But a twofold convention, that of architectural fitness on the one hand, and the far-reaching one growing out of the translucent medium on the other, limited this art to the strictest heraldic conditions. The dazzling brilliancy, too, of stained glass designs was overpowering to the effect of painting on an opaque surface. And hence, except in a subordinate kind of decoration, strong in colour, and heightened by gilding—like the borders of the pages of an illuminated manuscript—on small spaces and slender shafts, and even on sculpture, there was little call for the exercise of this branch of the painter's skill.

But sculpture did not require broad surfaces, and its effect within the building was not injured by the brilliancy of coloured glass, while on the exterior it was the most effective kind of enrichment. It was appropriate just where painting was not. Capitals, string-courses, archivolts, etc., all admitted and even called for enrichment by sculpture. The art of sculpture, accordingly, became, in Gothic architecture, an inseparable auxiliary, and almost an integral part of the fabric.

formulas of proportion to any such extent as writers like Mr. Penrose, for instance, have maintained. The tendency to consider such formulas as essential to an artist dates from Vitruvius, and has been widely misleading. The formulas of Vitruvius are mechanical and arbitrary. Whatever their value for purposes of analysis, they have an inferior part in creative performance. For an artist, in his creative processes, works by an intuitive sense of laws of which he can be, at most, but partially conscious. He often transcends, and frequently even violates, the scientific formulas. Hence Bacon's remark: "There is no excellent beauty, that hath not some strangeness in the proportion."

In this sculpture a singular correspondence with the spirit of the Gothic construction is manifest. As there is a living expression in the constructive system which distinguishes it from all other systems, so is there an expression of vitality in this Gothic sculpture which distinguishes it from all other sculpture. A fine appreciation of the life of natural organic forms, from which they largely drew their motives for ornament, is displayed by the Gothic carvers, and displayed in an unparalleled degree. Whether in mere ornament—the enrichment of capitals, the running patterns of string-courses, the *voussoirs* of archivolts,—or in figure or animal sculpture, this expression of life is alike conspicuous. It is true that in all good ornamental sculpture of the previous schools of art a greater or less degree of vitality had been expressed. Most Greek ornament, though severely conventional, owes its beauty to these living qualities of lines and surfaces. And in Greek, no less than in Gothic sculpture, these living qualities arise from a greater or less conformity with the characteristics of form in natural things. There may not have been, in the mind of the Greek carver when designing his ornament, any conscious reference to nature ; but that the lines and surfaces of the best Greek ornaments possess, however abstractly, a degree of conformity with those of natural things will hardly be questioned. The profile of the Doric capital, the Ionic volute, and the acanthus foliage of the Corinthian capital are conspicuous instances ; but in Gothic ornament this expression of life is more distinctly marked. In it the reference to nature is more distinct, more direct, and more systematic, than had ever before been the case. Even a likeness to individual species of vegetation soon makes its appearance in the growing style ; and an extensive range of flora—answering, in some cases, to that of the locality in which the work was wrought—is used to adorn the Gothic building. But the life derived from nature which appears in Gothic sculpture is no more an independent development than is the constructive system. The elements of Gothic ornament may almost all be traced back to the arts of antiquity. These antique elements were taken up by the Romanesque designers, at first in a spirit of coarse and ormal imitation, but finally with truer feeling which gave

rise to a renewed animation and to extensive variation of types, by which the way was prepared for the further modifications of the Gothic artists, in whose hands they receive a living character, varied by a fertility of invention, altogether without precedent.

In connection with the qualities of vitality and likeness to nature, must be noticed the conventional character that coexists with them in Gothic design. This conventional character is a result, in part of the traditional elements on which their art was based, and in part also of the native feeling of the designers, who well understood that the difference between nature and art, especially in architecture, is one that ought never to be lost sight of. In its integrity Gothic art does not permit the limits of architectural propriety to be overstepped by imitative realisation. It is conventional in the strictest and truest sense ; but it is never arbitrarily so. Its convention is the natural result of obedience to the limitations imposed by position, material, and architectural fitness. It is only in the decline of Gothic—a decline that sets in much earlier than has been commonly supposed—that anything like direct imitation of nature appears.

Throughout the period of its integrity the traditional principles of ornamentation are retained. They are often, indeed, applied in such new ways as almost to lose their identity ; but they are never thrown aside. The ancient principles of ornamental design, the ancient grammatical forms of expression, are of universal propriety because they are based upon fundamental, and therefore authoritative, laws of relation and quantity. The combinations of elements may be endlessly varied, but the ruling principles may never be superseded.

And superseded they never are in true Gothic. Gothic sculpture being, as I have already said, like Gothic construction, an evolution out of older elements, it bears, through its whole duration, distinct traces of them. Thus in Amiens Cathedral there are string-courses adorned with running ornaments, the disposition of whose parts recalls the egg and dart design of the Greeks. Others are based upon the various conventional meanders and scrolls of classic design. But instead of the abstract forms of the antique details we have the generic types, and even many of the individual

peculiarities of natural leaves and flowers. In the one motive a rounded foliate or floral boss answers to the ovate member of the ancient scheme, while a tendril with lateral leaves answers to the dart. In the others the meander or scroll is a living branch, into the spaces enclosed by the wavy or convoluted lines of which grow, as if of their own volition, leaves and fruits, giving place at happy intervals to fluttering birds, or springing, crouching, or reposing animals.

Everything is designed organically. Leaves and buds spring from growing stems, fruits depend naturally from their branches, animals live and leap. In this respect Gothic ornament is in striking contrast to what we find in the so-called revived classic art, where natural objects are treated inorganically, where fruits and flowers are represented as tied up into bunches, or are hung in formal festoons, and where even artificial objects enter largely, as leading elements, into the decorative composition. Everywhere in Gothic art is life, but life ordered by and obedient to the requirements of architectural congruity, so that the resulting conventional character becomes as conspicuous as the living naturalism. More life and abstract natural beauty it is hardly conceivable that human art could express. A nearer approach to imitative realisation would violate the nature of stone and defeat the ends of art. The artist is keenly appreciative of nature, but he equally perceives the purposes of his art. In judgment of what to take and what to leave he is unerring. The springy line and gracefully undulating surface are caught from nature and wrought into the stubborn stone; but the designer experiences no embarrassment in keeping within the limits of what stone can be made rightly to express.

This living and refined beauty, coexisting with architectural subordination, is as marked in Gothic figure sculpture as it is in that of the lower forms of ornament. And in figure sculpture, no less than in lower ornament, there are marked signs of Greek influence and kinship.[1] This shall

[1] Nor is it impossible, in some measure, to account for this; though fully to trace the lines of connection might be difficult. The Greek elements in Gothic sculpture have been noticed, though not exhaustively treated, by M. Viollet-le-Duc. It ought to be made the subject of a special treatise by some competent writer. To treat the subject justly would require both scholarship and trained artistic faculty—such as are rarely united in the same individual.

be further considered, though it cannot be adequately treated, in future pages. It is enough here to remark that all of those fundamental principles of design which characterise the finest plastic art of Greece—such as organic composition, breadth of masses, refined flexures of surfaces, quiet grace of contours, moderation of curvature in figures and draperies, and general dignity of pose and gesture—are constantly present in the works of the Gothic carvers. While in addition to these qualities there are in Gothic figure sculpture the same adaptation to position, and the same subjection to architectural effect, that we find in foliate ornament. And herein consists largely the difference, in so far as treatment is concerned, between Greek and Gothic design. Sculpture as an independent art reached a higher perfection in Ancient Greece and in Renaissance Italy. But as an architectural auxiliary there is no sculpture comparable to Gothic. Nor is Gothic sculpture rendered altogether inferior as sculpture by this subordination. On the contrary, this stern subjection brings out some of the grandest qualities that sculpture can attain. It enforces the omission of all that is trivial, and gives emphasis to what is significant and important. As instances of Gothic sculpture in which these qualities are especially marked may be mentioned, the statues of the west portals of Chartres, the bas-relief of the Assumption of the Virgin on the lintel of the main portal of the Cathedral of Senlis—to be more fully noticed when we come to treat of French sculpture,—and the statue of the Virgin in the portal of the north transept of the Cathedral of Paris.

It should be noticed also that there is in Gothic sculpture a structural fitness wherever occasion calls for it—as, for instance, in the corbelled projections which support the wide abaci of capitals. It is remarkable that a high degree of beauty often appears to result from such structural adaptation. Indeed, the beauty of the finest Gothic capitals is largely due to the forms which adapt them to their functions, and render them to the eye, as well as in reality, strong and efficient working members. With this functional form of the main mass every detail of ornament appears to act in sympathy, though it be only in the direction of its lines. There is an expression of upward impulse in the endlessly varied Corinthianesque foliation of the Gothic

capital which carries out the principle of bearing up so emphatically marked in the bell. And to this the graceful reverse curves of the helices only add value by contrast. It is noticeable that in Gothic of the best character the sculpture of functional members is not such as to disguise their general contours. The bell of the capital, for instance, is never so much cut away or so loaded with projections as to injure the main mass.

This life and this beauty, based upon logical principle, extend through the entire Gothic system ; and in nothing are they more marked than in the profiles of mouldings. The profiles of string-courses, for instance, which in the Romanesque style retain the level upper line peculiar to antique mouldings, and suitable to a southern climate, are in the Gothic gradually changed to a form in which the level line gives place to a steep sloping line which sheds water quickly, and is hence adapted to the stormy climate of the North. This steep right line is associated with curves of varying flexure beneath, forming simple and effective mouldings enriched in the sheltered hollows by sculpture. These profiles assume a great variety of forms, while they never fail to exhibit graceful lines and proportions. In capitals and bases a subtle sense of function and of beauty is always conspicuous, though these forms also are of endless variety. The profile of the capital is made up of lines that are adapted in all their parts, as they are not in any other style, at once to the shaft which the capital crowns, and to the load which it carries. The base also—almost always some modification of the Attic type—is equally admirable in its profile, giving, with artful grace, real and apparent stability to the shaft. Indeed, there is hardly a more beautiful thing in Gothic art than one of these base profiles. The proportions of its parts, the use of contrasting angles, and especially the character of the curve of the lower torus, are unsurpassed, if indeed they are equalled by any of the mouldings of antiquity.

In a definition of Gothic architecture none but the truest form of the art properly concerns us. The many offshoots, imitations, and modifications of Gothic, which subsequently sprang up in different parts of Europe, often no doubt possess great interest, and even sometimes great

beauty, but they do not afford us a true illustration of the Gothic style. This truest form of Gothic, that which alone is really Gothic, or, in other words, really a new and consistent style, differing fundamentally in both its structural and decorative systems from all other styles, is, it may as well be said here, native to France only. Hence upon the Gothic of France our definition is necessarily founded.

This Gothic art, like every other great art, was, in its completeness, of short duration. After a considerable period of preparation and germination, a period during which the Romanesque—first in Lombardy, and afterwards in Normandy—had been reaching out more and more after new principles, a combination of happy conditions conspired gradually to bring it into full and fair being. Early in the twelfth century was brought about in Northern Gaul that fine balance of ethnologic, religious, social, and political influences of which the development of Gothic architecture is among the happiest results. But with the quickly succeeding disturbance of this nice adjustment of conditions the character of the art gradually changed, and a course of decline became inevitable and rapid. If we would truly know Gothic art we must study it in the vigour of its early life. Its characteristics in this state are what I have attempted briefly to describe, and shall, in the course of the succeeding chapters, endeavour more fully to illustrate.

The edifice which chiefly stimulated Gothic invention was the cathedral—the leading object at once of popular, municipal, and ecclesiastic enthusiasm. In it were centred all the most potent and active interests, religious and social; and the best genius of the time was expended upon it. The cathedral church especially was the outgrowth of the growing freedom from monastic and feudal oppression, and an expression of monarchical and communal organisation, as well as of religious faith and aspiration. So close, at this time, was the connection between things civil and religious that popular monuments could not fail to partake of the nature of both. History affords no parallel to the spirit which gave rise to the Gothic cathedral. The nearest approach to it was that which produced the Greek temple. Both were conditions of intense popular enthusiasm engaging with religious ardour in the construction and adornment

of monuments for public benefit and enjoyment. It was the cathedral, the largest, the most comprehensive, and the most popular form of Christian church, that brought out the full development of Gothic architecture.

Nevertheless, the first steps of change from Romanesque to Gothic were taken before the great cathedral movement set in. They were taken in the monastic churches, and with them the study of this change must begin.

The vast new impulse in building which, in the eleventh century, extended all over Christian Europe, assumed a peculiar and potent character with the religious orders of the North. In Italy, while buildings of great extent and magnificence, such as the Cathedral of Pisa, were at this time begun, no new system was foreshadowed in their construction, no new principle was introduced. Italian art, excepting always that of Lombardy—which was not an outcome of native genius,—was, in the eleventh century, as strictly classic in principle as that of Christian Rome had been in the fifth. But north of the Alps, or rather north of the Loire, a new style of architecture was in process of development. The monastic orders of the North, less given than those of the South to seclusion, contemplation, and inaction, became very energetic builders. With them, at this time, mutual intercourse and interchange of ideas were general, a spirit of invention was active, and constructive enterprise was astir in all directions.[1] The immunity from pillage which the monastic establishments had enjoyed during the most troubled times had enabled them to accumulate wealth which, together with their enlarged relations with the masses of the people, suggested the need of more ample and more elegant accommodations. The churches of former times seemed poor and unworthy, and their rebuilding on a more extended and more magnificent scale became frequent.

These monasteries had early taken every means to qualify large bodies of men to practise the arts. They had organised and maintained schools where art and science were taught—where architecture, sculpture, and painting were cultivated under the guidance of traditions which

[1] The monastic buildings were not only planned, and the work on them directed by the monks, but they were also, in many cases, largely constructed with their own hands. See Lenoir's *Architecture Monastique*, p. 36, *et seq.*

regulated the forms of production, while they yet left some scope for the free play of new ideas. Under these conditions were made the first attempts to employ the pointed arch constructively in vaulting, and to infuse a new character into the old forms of ornament by ingrafting upon them motives derived from a more independent outlook into the world of nature. These monastic experiments were often awkward and unsuccessful, but each one of them suggested further improvements which were quickly undertaken ; and however imperfect were the results reached, their animating spirit was always admirable.

But the monasteries, active and ingenious as were their inmates, were not the sources whence were to issue the most potent ideas and influences. The development of the Gothic system was not to be the work of the monk. There were limits to the freedom that might be exercised under the shadows of the cloister ; and the architectural requirements of monastic routine and ceremonial were of comparatively narrow range. A freer spirit of enterprise, a wider experience of life, and a more majestic service were needed to call into activity the highest powers of invention, and fully to develop the genius of the Middle Ages. Yet there are few things more interesting, more instructive, or more beautiful in human history than the way in which these early cowled builders struggled against difficulties and disadvantages, and laid the foundations of an art which was, in the stronger hands of their lay successors, to culminate in the perfections of Chartres and Amiens.

One further point must be noticed, namely, that the architecture of the Middle Ages not only reached its highest perfection in the cathedrals, but that it was, in the strictest sense, an architecture of churches only,—that is to say, it was in church edifices only that the style was completely developed. The forms and features which were first brought into being in the church were afterwards applied, as far as they were suitable, to such civil, military, and domestic buildings as had any architectural character ; but in such buildings there was no independent development. Broadly speaking, this has always been so. Architecture, inspired by religious faith and designed for religious uses, has ever preceded that designed for secular purposes, and has largely determined the

character of secular building. We are apt to forget that the leading architecture of the Egyptians was that of the temple; that almost the only architecture of the Greeks was that of their temples; that all the best elements of classic Roman architecture were borrowed from Greek temples; that the civil architecture of the Middle Ages was that of the churches modified to meet civil needs; and that the original elements of modern architecture were developed in ancient temples and in mediæval churches.

Finally, the close connection that in all times of living art exists between the work of the hand and the ideas and emotions of the mind is pre-eminently displayed in the art we are considering. So much is this the case that not only is the stamp of thought and feeling impressed upon every fragment of sculpture in the manner that we have already noticed, but more than this, the church edifice was like a vast open page whereon were written in imagery, which the most illiterate could read, the sacred legends and traditions of the common faith. These legends and traditions must be reckoned first among the sources of inspiration which stimulated the imaginations and guided the hands of the artists who wrought upon the fabric. The considerable body of religious literature that had been produced in the early Middle Ages called out the warmest sympathies and the highest aspirations of the people, and filled their minds with devotion to the fabric whose erection was to be, so far as they could make it, a fitting expression of their beliefs and hopes.

In fine then, Gothic architecture may be shortly defined as a system of construction in which vaulting on an independent system of ribs is sustained by piers and buttresses whose equilibrium is maintained by the opposing action of thrust and counterthrust. This system is adorned by sculpture whose motives are drawn from organic nature, conventionalised in obedience to architectural conditions, and governed by the appropriate forms established by ancient art, supplemented by colour design on opaque ground and more largely in glass. It is a popular church architecture, —the product of secular craftsmen working under the stimulus of national and municipal aspiration and inspired by religious faith.

I have said that this architecture in all its distinctive characteristics is native to France and to France only. I shall endeavour in the following chapters to illustrate this fact by a detailed examination and comparison of the pointed architectures of the different countries of Europe, first as regards their constructive, and afterwards as regards their decorative systems.

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CHAPTER II

GOTHIC CONSTRUCTION IN FRANCE

By France in this chapter, and indeed throughout this book, is meant the France of the twelfth and thirteenth centuries—that is, the Royal Domain of the Capetian Dynasty and portions of a few contiguous provinces, chiefly Champagne, Burgundy, Picardy, Orléanais, and Berry. To this region the early Gothic movement was confined. Indeed, its earliest manifestations were circumscribed by even narrower limits, those, namely, of the Ile-de-France—that is, of the region of which the larger part is now included in the departments of the Seine and the Oise.

Though many of the works of this early art have perished, much yet remains, and the beginning and course of development of the new style may, by careful examination and comparison of the characteristics of existing buildings, be made out with substantial correctness, though no other sources of information exist. For such scanty written records of building as have been preserved are wholly devoid of information respecting principles and methods of construction. We are compelled, therefore, to rely upon independent study of the buildings themselves.

We need not stop to consider the earlier innovations in buildings in which the round arch alone continues to be employed—as in the apse of St. Martin des Champs at Paris, and in the Collegiate Church of Poissy, where the vaulting compartments are merely separated by transverse ribs,—but rather begin our investigation of the growth of Gothic in France, with those monuments in which the pointed arch first appears as a constructive device in vaulting.

The new principles of construction are first distinctly and skilfully exemplified in the Abbey Church of St. Denis, which dates from 1137 to 1141. And the origin of Gothic, so far as existing monuments exhibit it, is, on the Continent, now commonly traced to that building only. But the Abbey Church of Morienval, near *Crépy-en-Valois*, appears to anticipate, though in a halting manner, some of the principles that are carried out so remarkably in St. Denis. This church, a construction of the eleventh century, has an apse which dates from the end of the eleventh or the beginning of the twelfth century, and a rudimentary apsidal aisle whose vaults have diagonal ribs, pointed archivolts,[1] and even rudely pointed transverse arches, though of these last arches one has no rib, while the other has a rudely adjusted and very heavy round-arched one. The diagram[2] (Fig. 11) illustrates the form and construction of one compartment of these vaults, the one marked *a* on the reduced plan of the apse given at A. It will be seen that the narrow archivolt *a*, in the plan B, whose elevation is at *a'*, is both stilted and pointed, in order to bring its crown up to nearly the same level as that of the wider spanned round arch *b*, whose elevation is at *b'*; and that the transverse arch *c*, situated at *b* in the plan A, is more acutely pointed for the same reason, while the transverse arch *d* assumes the form of an irregular ellipse. It is interesting, as showing that constructive exigencies alone here brought about the use of the pointed arch, to notice further, that the ridges of the longitudinal cells, *g* and *h*, having to pass through the intersection of the diagonals, and curving with the form of the apse, bring the crowns of these transverse arches to one side, rather than

[1] Three of these archivolts are pointed, and one is round, there being four arches in all to the apse arcade. The Report of the "Congrès Archéologique de France" for the year 1877 thus alludes to this apse: "Nous voudrions aussi dégager de l'époque ogival certains églises où, malgré l'ogive et même la nervure, on trouve dans les moulures, dans les colonnes ou dans quelques dispositions générales, des formes qui rappellent par trop encore soit le XI^e^ siècle, soit les premiers rudiments de la transition. Le chœur de l'église de Morienval mérite à cet égard d'être cité tout le premier : la nervure et l'ogive avaient été fort peu pratiquées lorsqu'il fut construit, et peut-être, ou plutôt selon toute probabilité, c'est là que les habitants du Valois virent pour la première fois ces germes fécunds d'un nouvel art de bâtir."

[2] I am indebted for this diagram to Mr. G. F. Newton, who kindly took the pains to go for me from Paris to Morienval, and secure the data which my own notes had not fully included.

over the centres of their bases, and thus give unequal curvature to their sides. This would hardly have been tolerated had it been merely a preference for the form of the pointed arch which determined its use. These awkward arches are so plainly the result of a groping struggle with the difficulties of vaulting a curved oblong space, that they seem to show beyond question that the pointed arch was not introduced as an admired form, but that it came unsought

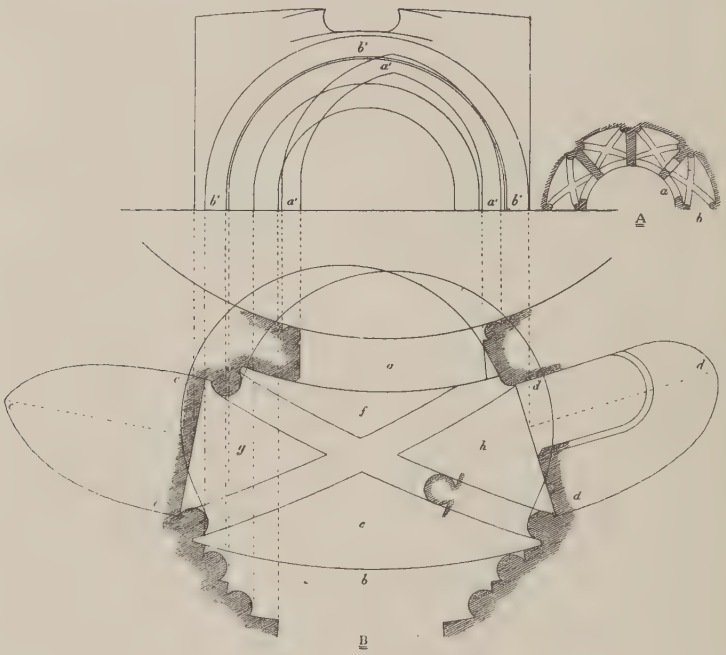

FIG. 11.

in the course of constructive experiment. The interest of this vault lies chiefly in what it exhibits of experiment in the application of new principles as yet but feebly apprehended. This groping procedure is shown again in the forms given to the plans of the diagonal ribs which are curved instead of being straight, in order, in some measure, to avoid the extreme one-sided position of the ridges of the longitudinal cells, which must pass through their intersection, and also to avoid, in some measure, the excessive inequality of the sides of the transverse arches. By this means, too, the inequality of magnitude in the transverse cells, *e* and *f*, is in some

degree lessened. The perspective elevation of this vault is shown in Fig. 12.[1]

Incomplete and awkward as is the system adopted at Morienval, we have here a form of vault construction

FIG. 12.

such as had been before unknown; a form which, though imperfectly carried out, already contains some of the most characteristic structural features, and involves some of the

[1] This figure is copied from a drawing by M. Boesviswald, architect of the French Government, and published with his permission.

most important principles of the Gothic vault. The apse of Morienval, therefore, rather than that of St. Denis, must be regarded as the first step known to us on the way to the Gothic style. The full value and far-reaching consequences of what was here rudely accomplished were, indeed, not yet recognised; but everything was sure in time to follow on such a beginning.

Between Morienval and St. Denis no intermediate steps in the line of progress can now be traced. Yet it would seem that such must have existed; for not only does St. Denis show a consistent advance in the direction that had been indicated at Morienval, but the mastery of the new principles, the skill of execution, and the comparative lightness and elegance of the work, are such, that it is hard to believe so much could have been accomplished at a single stride.

Of the work wrought under Suger at St. Denis the greater part has been destroyed; but the aisles of the choir and apse and the apsidal chapels remain in excellent condition. The construction is on a much larger scale than that of Morienval, and in place of the rudimentary apsidal aisle we have here amply developed double aisles to both apse and choir—foreshadowing the vast and magnificent aisles of Paris, Chartres, and Amiens,—whose vaults show no sign of hesitation and little executive imperfection. They are furnished with a full system of sustaining ribs, of which the transverse and longitudinal ones are pointed. The diagonals are round arches, and project vigorously, effectually strengthening the groins. Their intersection is far above the crowns of the enclosing arches, and the cells are thus necessarily much domed.[1] Here, for the first time among existing monuments, does the rib system wholly determine the forms and constitute the strength of the vaults. The architect of St. Denis was a master of the principles involved in his scheme. His complex plan is carried out in all its details with astonishing sureness.[2] In the curved compartments of the apsidal aisle, for instance, the difficulty which in Morienval

[1] More or less doming is a constant characteristic of French-Gothic vaults. The courses of masonry, from rib to rib, are all distinctly arched, and the ridges of the cells are consequently arched also, even in Amiens Cathedral.

[2] See Viollet-le-Duc, *Dict. s.v. Trait*, p. 201, *et seq.*; and *Voute*, pp. 503-505.

led to the one-sided form of the transverse arches, is overcome by the application of the new principle that the forms and arrangements of the ribs shall determine those of cells. Thus an equal-sided pointed arch spans the end of the compartment, and the ridge of the cell is made to meet its crown. Moreover, the unequal dimensions of the transverse cells, which the vault of Morienval exhibits, is largely avoided by disposing the opposite branches of each diagonal rib, so that in plan they meet at an angle, thus bringing the intersection of the diagonals in the centre of the compartment (Fig. 13). The difficulties of vaulting a structure of such plan by any of the older methods of vaulting were very considerable, and when accomplished, the result was necessarily very unsightly. For the varying dimensions of the spans to be arched over inevitably occasioned either most awkward differences of level in the springing of the arches, or else equally awkward differences in the elevations of their crowns. But by the use of the pointed arch, which readily adjusts itself to any span without a change in height, such a plan is easily vaulted, and with beautiful rather than unsightly effect.

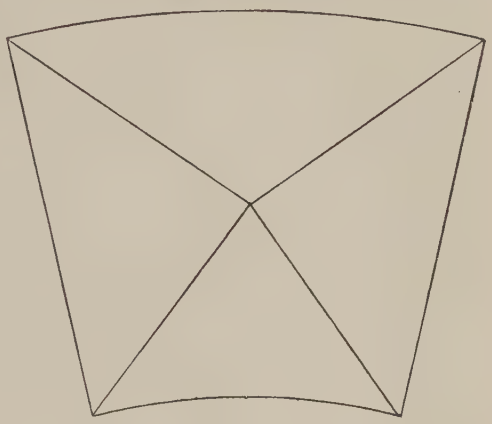

FIG. 13.

The original arcade piers of the choir and sanctuary[1] do not exist, the piers having been reconstructed, together with the high vaults, in the thirteenth century; but the shafts which divide the aisles remain unchanged. They are monoliths of slender proportions, though heavy enough for their work, which is considerable. They taper a little and have a slight entasis—a lingering characteristic of ancient art which appears also in several other early Gothic buildings. Their capitals are considerably advanced towards

[1] The sanctuary is the semicircular part of the choir.

Gothic form by spreading to receive, upon an ample abacus surface, the threefold load of transverse, longitudinal, and diagonal ribs. It is to be regretted that we have now no means of ascertaining what were the forms of the choir vaults and what was their system of supports. The bases of the piers of the sanctuary are all that remain of this system, which was, however, there can be little doubt, substantially like that of the nearly contemporaneous structures presently to be noticed.

In Morienval and St. Denis we have, then, the Gothic principle of vaulting in its inception and in its earliest complete character, as displayed in ground-story vaults of small dimensions. The next examples show the nature of the early vaults and vaulting systems on a larger scale. .

It is impossible to be precise in chronological sequence, but the Cathedrals of Senlis and of Noyon must, it would seem, have followed very soon after Suger's work at St. Denis. They are beyond doubt nearly contemporaneous buildings, and M. Vitet has shown [1] that the early portions of the existing Cathedral of Noyon must have been begun as early as 1150. The eastern portions only of these buildings belong to this early date; the naves were not completed till later in the century. In Senlis all to the east of the transept, and in Noyon both choir and transept, illustrate the progress that had been made by the middle of the twelfth century. Both of these churches have apsidal aisles, apsidal chapels, and vaulted triforium galleries. The choir of Senlis is of the unchanged primitive construction, with a few minor exceptions, up to the level of the clerestory string; but its present high vaults and clerestory are the incongruous and ill-proportioned work of a much later epoch. The arrangement and the forms of the piers indicate that the original vaults were sexpartite, and, after those of St. Denis, they must have been among the very earliest vaults of considerable scale constructed on Gothic principles. Hardly any vaults of this form remain in the Ile-de-France of a date earlier than those of the choir of the Cathedral of Paris, which were completed about 1180. The earliest progress of sexpartite vaulting, in France proper, cannot therefore now be studied; but there are sexpartite vaults in the Norman churches of

[1] *Notre-Dame de Noyon.* Par L. Vitet. Paris, 1845.

Caen which afford instructive illustration of the beginnings of such constructions. Of these the vaults of the Abbaye-aux-Hommes are the earliest, dating from the early part of the twelfth century.[1] They are beyond doubt among the earliest, if they be not the very earliest, sexpartite vaults that were anywhere built. But they are not Gothic vaults, notwithstanding their transverse and diagonal ribs, because the rib system is neither complete nor independent. It is not complete because there are no longitudinal or wall ribs ; and it is not independent, though it is not incorporated with the shell of the vault, because the forms of the arches do not determine the forms of the vaults, but are themselves determined by these forms. The mind of the builder was preoccupied with the traditional methods of vaulting, based upon the intersecting principle, and the ribs of his vaults were accordingly made to follow the old forms ; hence the transverse ribs are round arched, and the diagonals are elliptical—forms opposed to Gothic principles as exerting the maximum rather than the minimum of thrust. The lateral cells, however, take a new form, which is a step in the direction of Gothic, since it is necessitated by the positions and the curves of the intermediate and diagonal ribs, to which these cells have to accommodate themselves. In covering the triangular spaces enclosed by these ribs and the clerestory wall, it was impossible to avoid those twisted surfaces which have often been mistakenly regarded as among the defects, though they really are among the essential characteristics, of Gothic vaults. In this instance, however, the twisted surface is less pronounced than it would otherwise be, because the longitudinal arches are made to assume an upright elliptical form—which however, adds to the awkwardness of the whole effect.[2] But with all their

[1] See *L'Église Ste. Trinité et l'Église St. Étienne à Caen.* Par V. Ruprich-Robert. Caen, 1884.

[2] In plain intersecting vaults the courses of masonry are, of course, all parallel with the axes, and hence the surfaces of the lateral cells are everywhere at right angles with the clerestory wall—upon which they trace segmental curves. But when the lateral cell is divided, by an intermediate rib, into two smaller cells, these cells must have oblique axes ; and their surfaces are necessarily also oblique. Moreover, the shell having to fit itself on to the triangle formed by the diagonal and intermediate ribs (which are portions of arches of different curvature) and the clerestory wall, has, of necessity, to assume an irregular shape. The efforts to keep the courses of masonry, as nearly as might be, parallel with the axes of the oblique cells may have been the cause of the elliptical forms of the wall arches.

defects these vaults mark an early step of much importance ; and the sexpartite form was a novelty which stimulated the artists of the neighbourhood of Paris to devise improvements, by means of which the true sexpartite Gothic vault was produced.

The motives which, in the Abbaye-aux-Hommes, led to the adoption of the sexpartite vault are not clear, but the forms of the piers which differ alternately in having respectively a single engaged shaft, and a broad pilaster in addition to such a shaft, probably suggested it. This arrangement of the piers, which the builders of the vault found existing in the originally

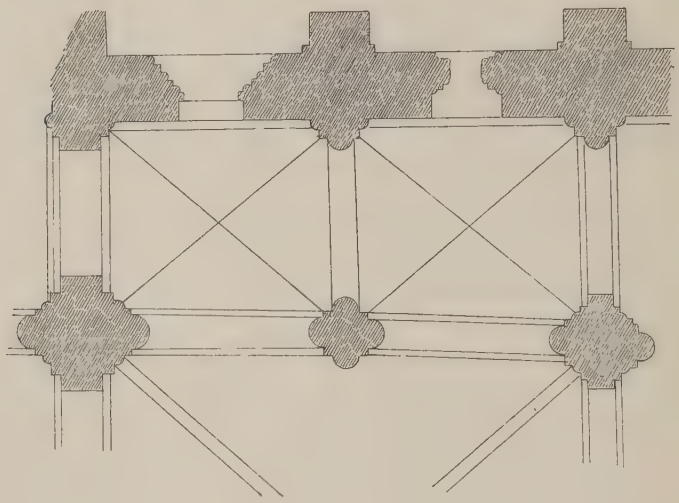

FIG. 14.

unvaulted edifice, was beyond doubt derived from the Lombard churches, though it differs in one important particular from the Lombard example. The Church of San Michele of Pavia, for instance, exhibits an alternate arrangement of piers, but one which, if designed for vaulting, was clearly intended for quadripartite vaults over square compartments, each embracing two bays of the aisles ; and hence the intermediate piers, having no function in connection with the high vaults, do not rise above the triforium. The arrangement will be understood by reference to the plan and elevation (Figs. 14 and 15) of one bay of this church.[1] The existing quadripartite

[1] Figures 14, 15, and 16 are copied from M. V. Ruprich-Robert's *Architecture Normande*.

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vaults do not belong to the original construction, and it is quite possible, indeed perhaps probable, that no vaults were originally intended, but that the main piers carried at first mere transverse arches, such as may still be seen in the

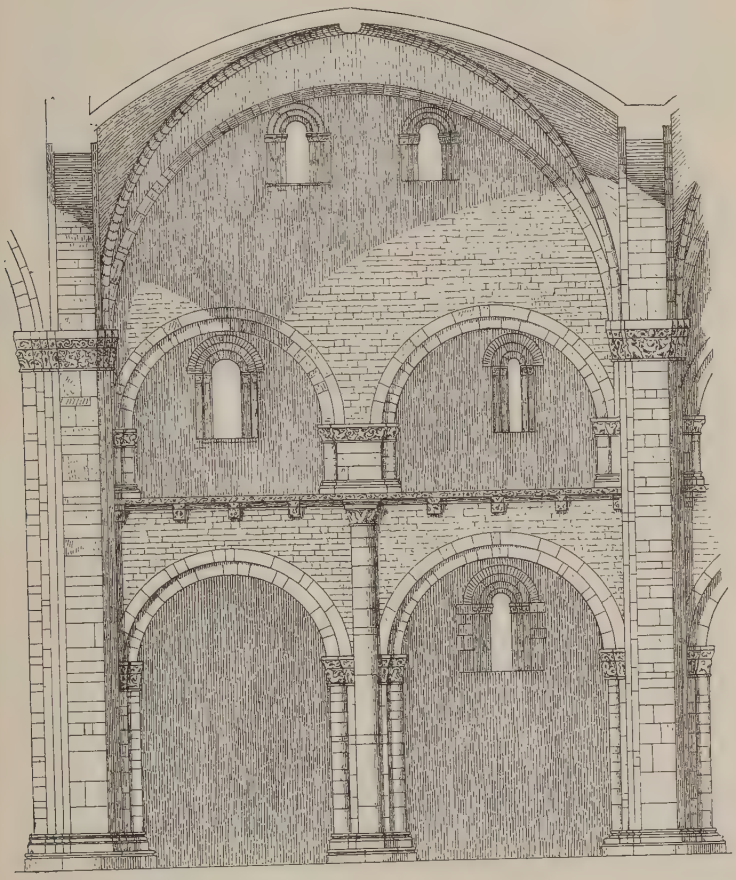

FIG. 15.

basilica of San Miniato at Florence, and such as were constructed also in the Church of Notre-Dame du Pré at Mans.[1] In these cases the intermediate trusses of the timber roofs rest on the walls without any supporting shafts, which are, of course, not required. But in the Abbaye-aux-Hommes (Fig. 16) the shafts of the intermediate piers are carried up

[1] See Viollet-le-Duc, *s.v. Travée*, p. 242.

to the top of the wall,[1] and hence, when the vaulting was undertaken, they may naturally have suggested the inter-

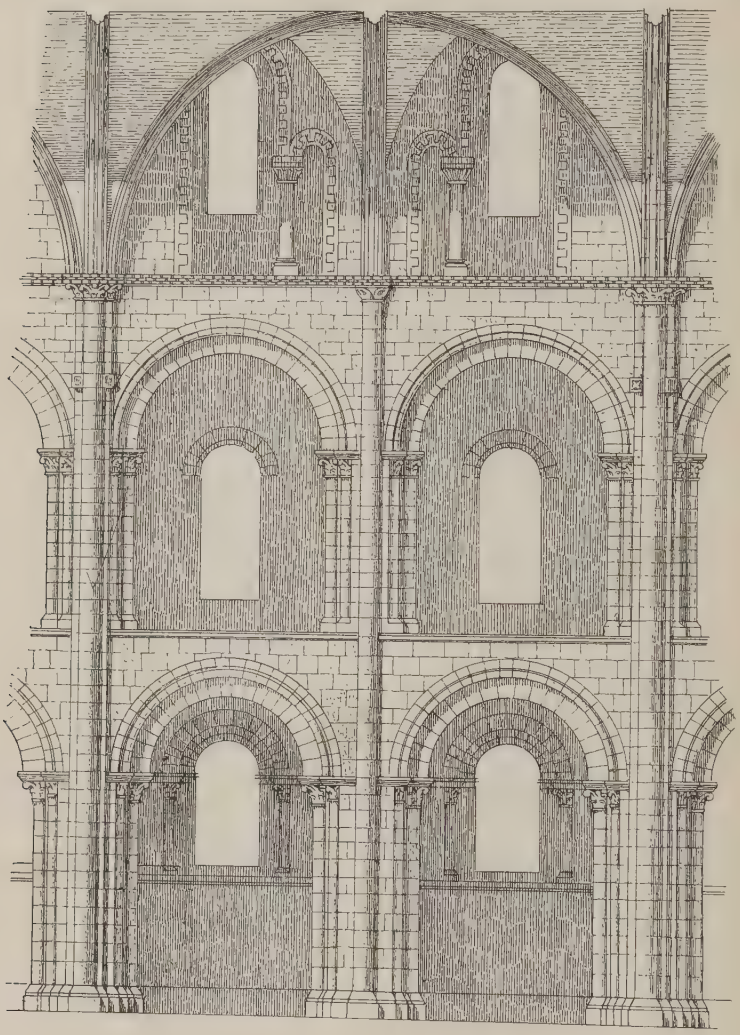

FIG. 16.

mediate arch of the sexpartite vault. However this may be, the piers, though not originally designed or adapted for

[1] A similar alternate arrangement of piers with intermediate shafts carried up to the top of the wall was not unfrequent in Norman buildings, both in Normandy and in England, as in Jumiéges and Norwich. Constructively this is useless alike

vaulting, are now, having been shortened and slightly modified for the purpose,[1] fairly well suited to such vaults as they carry. The two sides of the pilaster and the engaged shaft of the main pier carry respectively the main transverse rib and the two diagonals, while the intermediate shaft carries the intermediate transverse rib; and, there being no wall ribs, no other supports are required.

The principle of the sexpartite vault, with an appropriate vaulting system, thus, it would appear, accidentally developed and rudely embodied, in the Abbaye-aux-Hommes, became fruitful immediately in the Ile-de-France; where all chance work and groping experiment were being rapidly superseded by constructive foresight and consistency. Here in the Cathedral of Senlis there was nothing fortuitous or incongruous. The vaults and vaulting system were simultaneously conceived, and were, in all respects, parts of one whole. This is fully indicated by the piers, though not a stone of the primitive vaults remains in place. As the rib skeleton now determined the forms of the vaults, so with equal strictness did it determine the forms of the piers. These piers of Senlis are alternately massive and slender; the main pier being in section (Fig. 17) primarily a square intersected unsymmetrically by a rectangle. Against the four projecting faces of this pier rise, respectively, four engaged columns, *a*, *b*, *c*, and *d*, as shown in the section. Of these *a* supports the main transverse rib of the high vault, *b* and *c* support the archivolts of the ground-story, and *d* supports the transverse rib of the aisle vault. On each of the angles of the square central mass are worked round shafts, *f*, *g*, *i*, and *j*; *f* and *g* to carry the diagonal ribs of the high vault, and *i* and *j* to carry the diagonal ribs of the aisle vaults. While in the re-entering angles on the choir side are placed the shafts *e* and *h*, which carry the longitudinal ribs. The only capitals on the ground-story level are those of the archivolt columns and the aisle vaulting shafts. The five members

for vaulting (as vaults would have to spring from a lower level) and for timber roofs (which require no shafts whatever). It bespeaks a want of constructive logic in the Norman builders which, as we shall see in the following chapter, frequently appears also in the Anglo-Norman pointed architecture.

[1] To adapt the main pier more perfectly to the vaulting the pilaster was cut away at a level about two metres below the springing of the vaults, and short lateral round shafts were here introduced to support the diagonal ribs; a corbel on each side being interposed.

of the great vaulting group ascend without interruption to the springing of the high vaults; and the whole pier is built up of coursed masonry, admirably cut and closely jointed. The intermediate pier consists, on the ground-

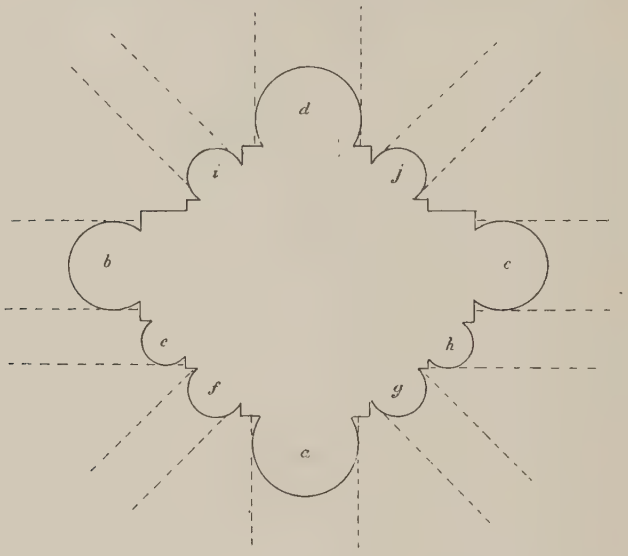

FIG. 17.

story, of a plain round column, from whose capital rise three slender vaulting shafts to support the intermediate transverse rib and the two clerestory ribs, the two ground-story archivolts and the transverse and diagonal ribs of the aisle vaults.

The arches of the great arcade are pointed and of one order. The triforium arches are also pointed, and are of two orders—the one not concentric with the other, an unusual arrangement, but one which occurs also in the apse of St. Denis. These triforium arches are carried by monolithic shafts, compactly grouped with the pier, and are not divided. Figures 18 and 19, an elevation and a section of one double bay, will afford a clearer idea than words can do of the character of this structure. And the perspective view (Fig. 20) of the opposite bay[1] will convey some impression of the

[1] These illustrations include only what remains of the original construction. The clerestory piers and vaulting are, therefore, wanting, and the wall is left incomplete in the section because subsequent alterations have obliterated the old design in the parts omitted.

beauty and the degree of Gothic expression that were reached in this interesting monument.

It will be seen that the architect not only intended

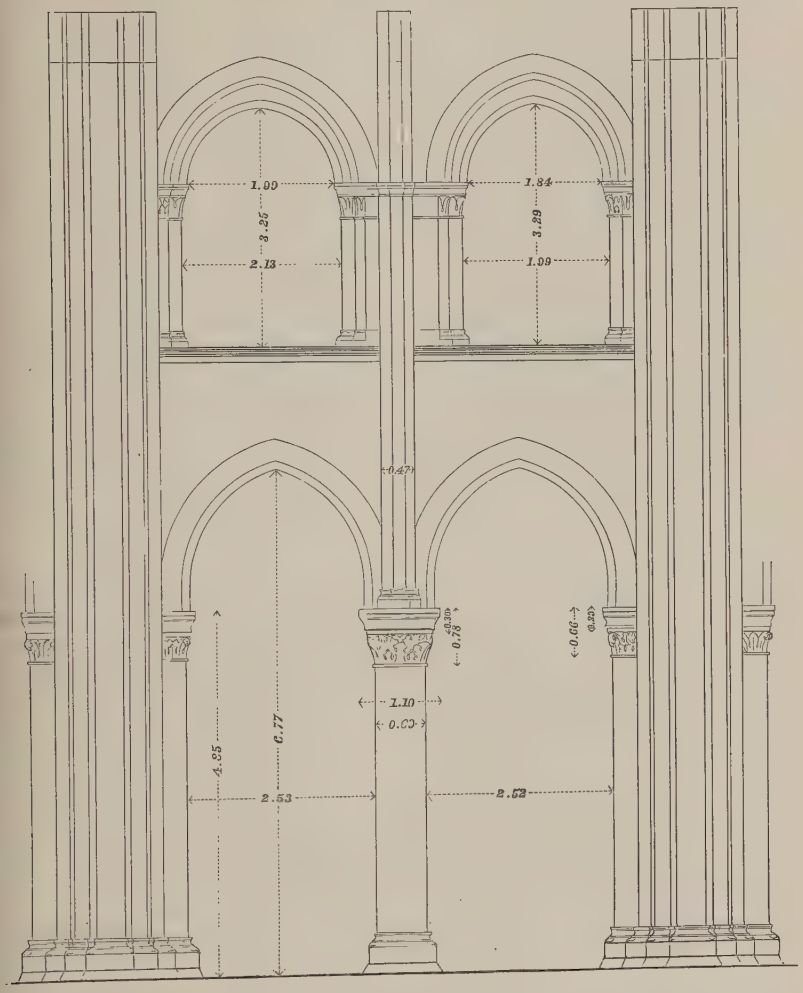

FIG. 18.

from the first to vault this choir, but that he perfectly understood what the form and construction of the vaulting was to be; that he had, in fact, settled in advance his scheme for the vaulting in every detail, so that his ground-plan was laid out, and the sections of his piers were determined by its

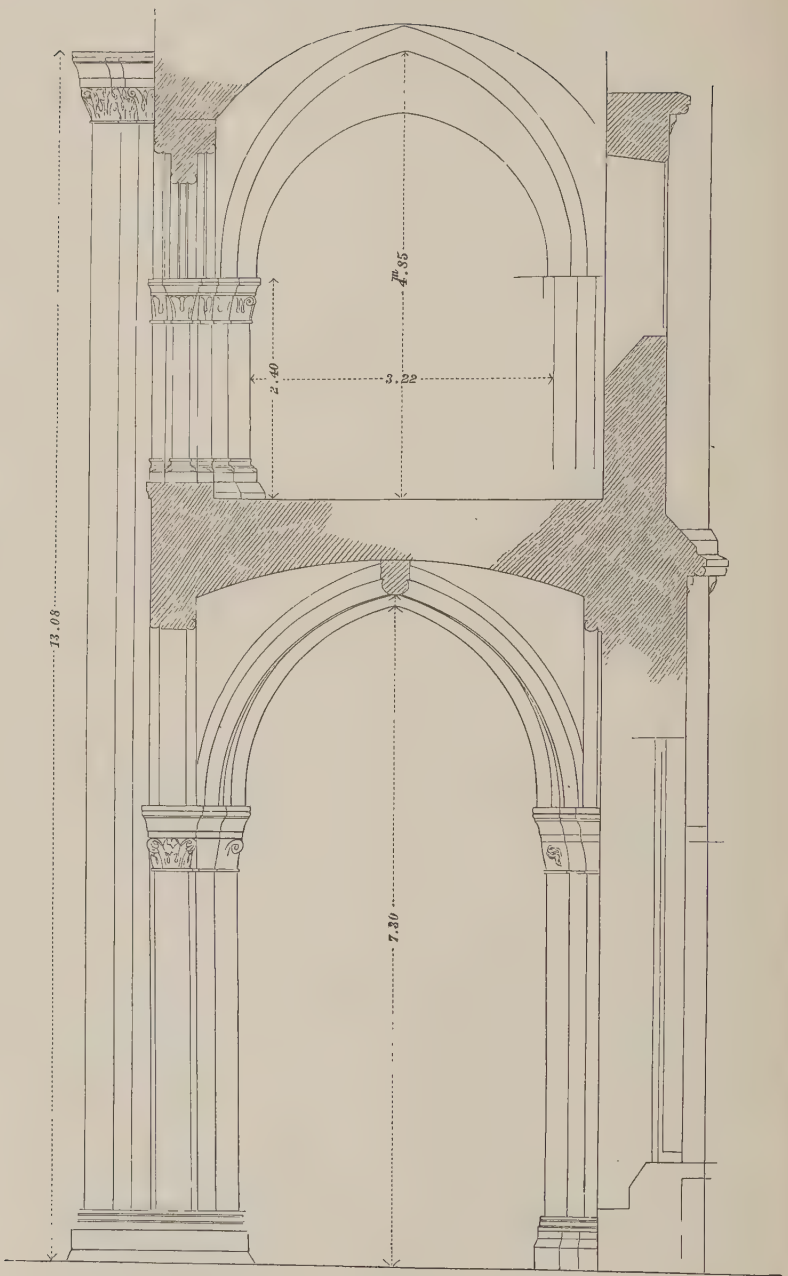

FIG. 19.

requirements. The principle fortuitously foreshadowed in the Abbaye-aux-Hommes is here developed with both scientific and artistic precision.

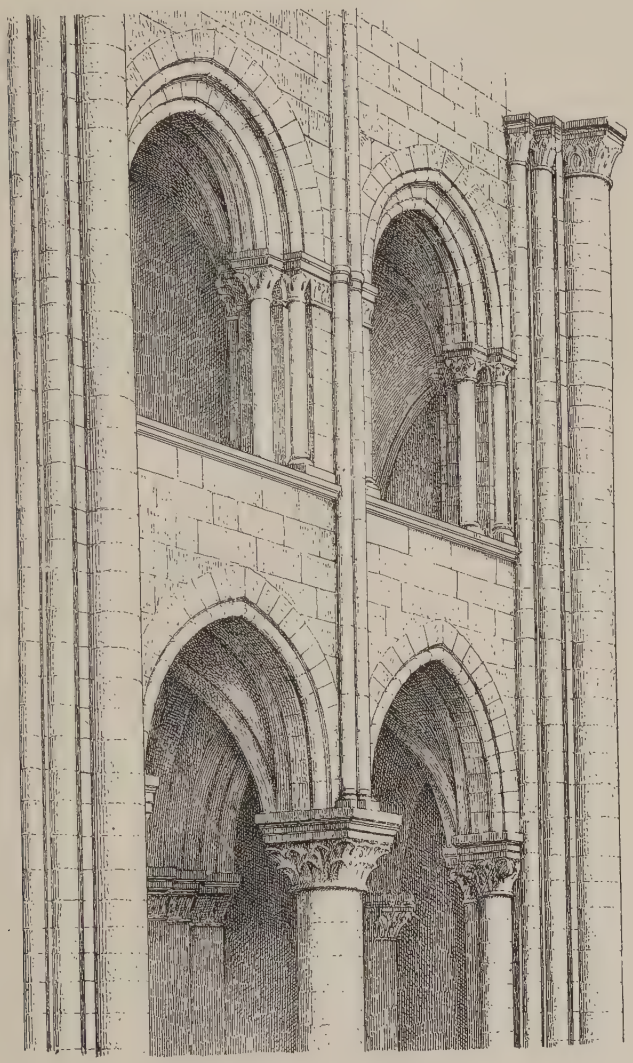

FIG. 20.

The same constructive logic is exhibited in other portions of this interior. The vaults of the aisles, of the apsidal chapels, and of the triforium gallery show no defects of

principle; and they are admirable in workmanship and remain in perfect condition. They are so closely similar to the aisle vaults of St. Denis that no further description is necessary.

It may here be remarked that we have reached the time of greatest perfection in masonry. After 1130 the walls, piers, and vaults of the twelfth century are unrivalled for fineness of facing and jointing. They are, in this respect, in striking contrast to those of the more hasty constructions of the thirteenth century. And nowhere do we find skill in the manipulation of carefully selected material more admirably exhibited than in this building.

A noticeable characteristic of the choir of Senlis is that it exhibits a nearer approach to Gothic principles and expression within than without. The interior is indeed frankly Gothic, though still massive, while what remains of the exterior is, in its broad walls and round-arched openings, almost strictly Romanesque. In this and in other early monuments of France, we see the style in process of formation according to the vital law of all organic development —the functions to be exercised calling into being and giving appropriate form to the requisite organs. We do not find the change from Romanesque to Gothic beginning in a mere arbitrary transformation of external forms and details— external forms and details are, in France, the last things to change. The growth of the Gothic principle begins at the very heart of the fabric and gradually works outward till every part is reached. Operating first imperfectly in the diminutive vaults of Morienval, perfecting the vault forms in St. Denis, and now from the high vaults of Senlis creating for itself an appropriate, though not a final system of internal supports, it moves on, as we shall see, in this creative fashion, till the full development is accomplished.

What was the precise mode of buttressing the high vaults we have now no means of knowing. It is possible that flying buttresses may have sprung over the aisle roofs; but there is hardly an instance of an external flying buttress of this early epoch, and it appears more probable that the triforium vaults formed the only abutments to the piers, which are almost heavy enough to bear the thrusts independently. As may be seen in Fig. 19, the

capitals,[1] from which the high vaults sprang, were situated below the level of the clerestory string, so that these vaults may have been sufficiently abutted by those of the triforium.

The choir of the Cathedral of Noyon has many points of resemblance to that of Senlis. It is on a somewhat larger scale, is lighter in the proportions of its parts, and, in some respects, betokens a freer exercise of the inventive talents of that great body of secular builders which was now taking the lead in architectural constructions, and finding scope for its genius in these communal cathedrals that were beginning to rise, in quick succession, in the newly-chartered towns.

Noyon had been one of the first cities to organise a commune ; and it had done so under the fortunate circumstance of its bishop having taken the initiative in the work, so that from the first there was harmony between the ecclesiastical and civil authorities,[2] which is curiously imaged in the church.[3] The vaults of this choir happily remain in good preservation. Unlike the original vaults of Senlis, they are quadripartite in oblong compartments ; and hence we have here a uniform, rather than an alternately varied, series of vaulting shafts and piers. The transverse ribs alone are pointed, and the round-arched longitudinal ribs are so much stilted as to bring their crowns up nearly to the level of the crowns of the diagonal ribs. There is, therefore, hardly any doming in these vaults. Three vaulting shafts, resting on the capitals of the ground-story piers, sustain the transverse and diagonal ribs respectively. The piers of the ground-story are, in the choir proper (with exception of two massive clustered ones, which were designed to support towers against the east side of the transept), plain round columns with a single engaged shaft (as in the section, Fig. 21). In the sanctuary the columns are more slender and have no engaged

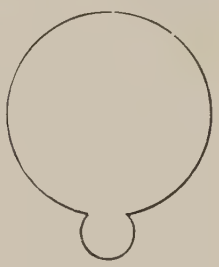

FIG. 21.

[1] The original capitals remain in place in the easternmost piers ; the additional height to the springing of the present vaults being reached by building up on them.

[2] A. Thierry, *Lettres sur l'Hist. de France*, p. 223, *et seq.*

[3] The ecclesiastical elements of design appear in the pronounced apsidal chapels and the apsidal terminations of the transepts. It may be, too, that the round arches which mingle so curiously in this building with the pointed arches are concessions to ecclesiastical traditional preference.

shaft ; they are monolithic, and have a slight entasis, like those of the aisles of St. Denis, and their capitals are of distinctly Gothic form in their functional adaptation to the new structural conditions.

The ground-story arcades are round arched except in the sanctuary, where they are pointed. The triforium openings are coupled pointed arches divided by groups of three detached monolithic shafts. Over the triforium is an arcaded gallery in the thickness of the wall, composed of diminutive trefoiled round arches, and the clerestory openings are round arched and undivided.

Unhappily the buttress system has been reconstructed, so that the original forms are uncertain. It can, however, hardly be doubted that flying buttresses sprang over the aisle roofs in true Gothic fashion, for the clerestory rises so high above the vaulted gallery that the vaults of this gallery could hardly have formed effectual abutments to the high vaults ; while the walls and piers, being less massive than those of Senlis, could hardly have sustained the vault pressures without reinforcement. On the whole, the Gothic principle is far advanced in this choir of Noyon, though its interior is by no means so pure and harmonious in design as that of Senlis. The nave was constructed at a somewhat later, though still at an early epoch ; and in it a fuller apprehension of the freedom afforded by the new principles of construction is indicated in the more slender proportions of piers and shafts, and in the increased magnitude of openings. In these respects, indeed, the nave of Noyon is hardly surpassed by any other monument of the twelfth century. Like Senlis, this nave was designed to carry, and it probably did at first carry, sexpartite vaults ;[1] its piers differ from those of Senlis in their lighter proportions and in minor details only. The ground-story arcade has pointed arches of one order, and the triforium openings consist of a pointed arch in each bay spanning a sub-order of two pointed arches. These are divided by a shaft of unprecedented slenderness, and the tympanum is pierced with a trefoil, an early step in the direction of plate tracery. There can be little question that

[1] The existing vaults date from the thirteenth century (L. Vitet, *Monographie de l'Église Notre-Dame de Noyon ;* and Viollet-le-Duc, *s.v. Cathédrale*) and are quadripartite. The original transverse ribs remain, and are alternately massive and slender in conformity with the requirements of sexpartite vaults.

flying buttresses substantially like those now existing—which probably date from the time of the reconstruction of the vaults in the thirteenth century—abutted against the main piers; and thus the Gothic constructive system was complete in its principal features here at Noyon soon after the middle of the twelfth century.

Though there are many minor puzzles presented by the respective peculiarities of these early buildings which, in the absence of clear documentary records, often prevent an exact determination of their chronological relationships, yet there can be little question that such constructions as the choir of St. Germain des Prés at Paris, the nave of St. Stephen's at Beauvais, the Churches of St. Leu d'Esserent, and St. Martin at Laon, besides many others, were nearly contemporaneous with Senlis and Noyon. Each of these buildings presents characteristics peculiar to itself, which show a degree of individual independence in the builders that is no less striking than their common allegiance to the leading idea which was, day by day, gaining distinctness, and was rapidly transforming the art of building. Some of these peculiarities we shall have occasion to refer to farther on, while we now pass to the consideration of the structural forms exhibited by some of the larger buildings of the second half of the twelfth, and the beginning of the thirteenth centuries—the vast Cathedrals of Paris, Laon, Chartres, Bourges, Reims, and others, —in which the highest perfections of the system were reached, and in which the astonishing rapidity of the Gothic development is shown.

But first it may be noticed in passing that the two modes of vaulting—the quadripartite and the sexpartite—go along together from the first, though in the earlier monuments the sexpartite form is the most common. Even in vaults so early as those of the Abbaye-aux-Dames of Caen, where a curious kind of sexpartite system[1] prevails, the

[1] The vaults of the Abbaye-aux-Dames are really quadripartite over square divisions embracing two bays each, with a dividing transverse arch carrying a vertical wall up to the crown of the vault. This might almost seem like an experiment tending toward the true sexpartite form, were it not pretty well ascertained that they were of later construction than the true sexpartite vaults of the neighbouring Church of the Abbaye-aux-Hommes. The same form of vault occurs in several other Norman churches, as that of the Priory of St. Gabriel (Calvados), and that of Ouestreham, both of which are illustrated in M. Ruprich-Robert's *Architecture Normande.*

vault of the westernmost bay is quadripartite on an oblong plan. In the choir of Noyon all the vaults are, as we have seen, quadripartite in oblong compartments, and they are the same in the choir of St. Germain des Prés. The idea that the sexpartite vault was developed first and was gradually superseded by the quadripartite form does not seem correct.[1]

Of the greater cathedrals the one in which the Gothic principles are first distinctly and systematically manifest is that of Paris. And this wonderful monument, notwithstanding all that it has suffered from violence and so-called restoration, exists to-day in almost complete constructive integrity.[2] Here is a vast central aisle so admirably roofed with stone that the construction has lasted intact[3] for seven hundred years, and will probably, if not injured by violence, last for centuries to come. These vaults are of the sexpartite form, and those of the choir, being about contemporaneous with those which originally covered the nave of Noyon, doubtless in the main show us what these were. The transverse ribs are pointed, the longitudinal ribs are pointed (here they differ from the vaults of the nave of Noyon, whose longitudinal ribs appear to have been round arched), and the diagonal ribs are semicircular. The intersection of the diagonal ribs is at a higher level than the crowns of the transverse ribs, which, in turn, are higher than the crowns of the longitudinal ribs. The vaults have thus a distinctly domed form which, at this period, was almost universal. All these ribs are independent arches which determine the forms of, and actually sustain, the vault shells. In vaults of this form the lateral cells are, as I have already remarked, necessarily oblique to the axis of the nave, and their surfaces assume forms which are difficult to define. Indeed, more or less obliquity and irregularity of surface is a constant and necessary characteristic of true Gothic vaults, even of those which are quadripartite. Gothic vaults are never simple

[1] Viollet-le-Duc, *s.v. Construction*, p. 103, refers to sexpartite vaults as constructed "suivant la méthode des premiers constructeurs Gothiques."

[2] Notre-Dame of Paris not only remains structurally in comparative perfection, but also retains a large part of its original sculpture. Within the building everything above the ground-story is the genuine untouched work of the twelfth and thirteenth centuries, and of the exterior the sculptures of the tympanums, the archivolts, and large portions of the jambs of the great portals remain as originally executed.

[3] The vaults of the choir are absolutely perfect; those of the nave have had to undergo some slight repairs since their partial reconstruction early in the thirteenth century.

intersecting pointed vaults. The new constructive principles did not admit of such forms. Gothic vault-forms do not admit of description in geometric terms. They vary according to the spans, the altitudes, the curves, and the points of springing of the arches that compose the rib system, and it is by the forms and relations of these arches only that such vaults can be described. In the vaults of Paris the filling-in consists of successive courses of arched masonry reaching from rib to rib over each triangular space of the plan. The beds of these successive courses are not parallel one with another, but incline variously according as the mason found necessary or convenient in developing the twisted concave surfaces required by the varying spans and positions of the ribs. In early vaults, like these of Paris, the courses usually have a considerable rise near the springing, from the longitudinal rib toward the diagonal; and they become gradually more level as they approach the crown of the vault, where they are more nearly parallel. But perfectly parallel they hardly ever can be, since each course is properly a portion of a surface which is concaved in all directions. The masonry of these vaults, especially in the choir, is perfectly faced and closely jointed.

The vaulting shafts are slender, and rise from the great capitals of cylindrical columns which constitute the piers of the ground-story. The flying buttresses were originally double—that is to say, the piers which divide the double aisles were carried up above the roof, where each one received the head of a flying buttress which sprang from the outer buttress, over the outer aisle, and gave foothold to another flying buttress which spanned the inner aisle and abutted against the great piers.[1] The principle of equilibrium maintained by opposing thrusts is here completely developed. The inert principle is wholly abandoned. The maximum of internal space for circulation and for prospect is attained by attenuation of supports, and if the maximum of size in external openings is not reached, it is not because any obstacles stand in the way, but only because the idea of having the largest possible openings has not yet presented itself to the minds of the builders.

[1] The present flying buttresses, consisting of arches which clear both aisles at a single span, are alterations of the thirteenth century.

A somewhat detailed consideration of the leading constructive characteristics of this building, and a comparison of them with those of other kindred buildings, will enlarge our understanding of the Gothic principles which are peculiar to France. These principles are substantially carried out in all of the great churches which were erected in this region between 1160 and 1220; but they were carried out more completely and consistently in some of them than in others. Hardly one of them unites all the perfections of which the entire group affords illustration; and the great variety of forms, under which the same leading idea struggles for embodiment, gives striking evidence of the active spirit of invention which animated this remarkable building movement.

One marked peculiarity of the Cathedral of Paris is that its piers are not adapted in form and magnitude to its sexpartite vaults. In this respect the adjustment of piers to vaults is the precise reverse of that which we have seen in the nave of Noyon, where the piers, fashioned for sexpartite vaults, are now covered with those of the four-celled form. It would seem that in Paris quadripartite vaults must have been intended when the plan was laid out, and that, for some now unknown reason, the sexpartite form was adopted after the building had been carried up to the springing of the vaults. For up to this level the construction of the piers is perfectly adapted for quadripartite vaulting—all the ground-story columns being of equal magnitude, and each of them carrying a group of three vaulting shafts, of which one group is precisely like another. The incongruity thus presented in both Paris and Noyon between the forms of the vaults and the adjustment of their supports is a serious defect in each of these otherwise admirable structures as they now exist; a defect which so contradicts the logic of the Gothic system as to leave little doubt that it was in each case the result of changes made in the original project—the changes having been wrought at Noyon probably at a later date than the original construction of the building, and at Paris after the construction had reached the springing of the vaults.[1]

[1] M. Viollet-le-Duc, *s.v. Construction*, remarks that the ill adjustment of the piers to the vaults in the Cathedral of Paris had in his early studies of the building greatly puzzled him; but that in the course of later investigations he perceived that the necessities of the sexpartite vault system were really provided for by the monolithic shafts which surround every alternate one of the piers which divide the

But in the Cathedral of Paris, though the same general incongruity exists in both choir and nave, there is a marked difference in the forms, the arrangements, and the adjustments of the respective vaulting systems. In the choir, the original design of 1163,[1] the vaulting shafts rise without break from the capitals of the ground-story to the springing of the vaults, varying in magnitude according to their respective loads. They are built up in courses—the central one being engaged against a projecting pilaster, and the lateral ones against the face of the pier. In the main group—that which carries the main transverse rib and two diagonals—the capitals are all on the same level. The central capital is set even with the wall, while the lateral ones are set diagonally, in the direction of the diagonal ribs.[2] These lateral capitals carry, besides the diagonal ribs, each a small shaft which rises to support the longitudinal rib whose springing is at a higher level—an arrangement of great significance as we shall presently see. In the intermediate group the arrangement is different. Here the central shaft only has its capital at the level of the springing of the great ribs, the side shafts rising unbroken to the higher points of springing of the longitudinal ribs, where they receive their capitals.

Figure 22 will illustrate these features. In this figure A exhibits the plan of the group of abaci of the capitals of the main vaulting shafts, and the sections of the ribs which they support; B is the plan of the abacus of the intermediate capital, with the section of the intermediate rib, and the sections of the side shafts; C is a perspective view of the main group, and D a perspective view of the intermediate

aisles—those so reinforced being opposite the great piers which carry the main transverse ribs and the diagonals of the vaults. This is hardly a justification of the construction as it exists. For this mode of reinforcement does not accommodate itself to the extra weight as well as thrust that falls on the main piers. And it is a mode that does not appeal to the eye at all. Moreover, it exists in the nave only. The dividing piers of the choir aisles are all alike.

[1] *Notre-Dame et ses premiers architectes, etc.* Par M. C. Bauchal. Paris, 1882.

[2] This is the usual arrangement of the vaulting capitals so long as the ribs retain a square section; but it shows the logic of the Gothic system to find that when the rib section is reduced to more or less of a wedge-shape—as it is in simple form at St. Denis, Senlis, and some other early buildings, and in more complex form at Amiens and elsewhere—then the central capital is, except in the earliest buildings, set diagonally, and the lateral ones are set even.

group. It will thus be seen that here in the choir the main and the intermediate groups of vaulting shafts differ according to their respective functional exigencies.

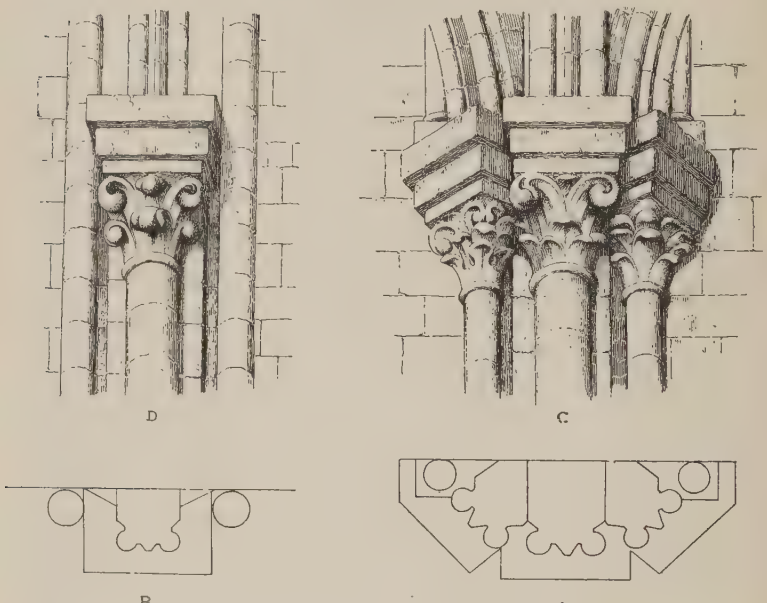

FIG. 22.

But in the nave, which was probably completed by 1196,[1] the vaulting system exhibits no such differences. Here the vaulting shafts (which are of unprecedented slenderness, and are not engaged with the pier, but are detached, as in the section, Fig. 23) are all of the same magnitude, notwithstanding the unequal weights which they have to carry. They are not, as in the choir, built up in courses of small stones, but are each composed of several, in most cases five, lengths of strong *cliquart*. Each group has all of its capitals (A, B, Fig. 24) at the springing of the great ribs. This arrangement is perfectly adapted to quadripartite vaulting, but it is ill adapted to the six-celled vaults which are reared upon these capitals. For while in the

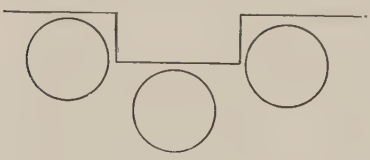

FIG. 23.

[1] See note 1, p. 55.

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main group (A, Fig. 24), the abaci are well covered by the three great ribs, and the bases of the small shafts which carry the longitudinal ribs, the lateral abaci of the intermediate group B, in the same figure, have the larger portions (*e*, in the plan D) of their surfaces unoccupied, since there are no diagonal ribs to be supported here. This is manifestly illogical as well as unpleasing to the eye. The only arch in this pier which springs from this level being the intermediate transverse rib, the central shaft which carries it

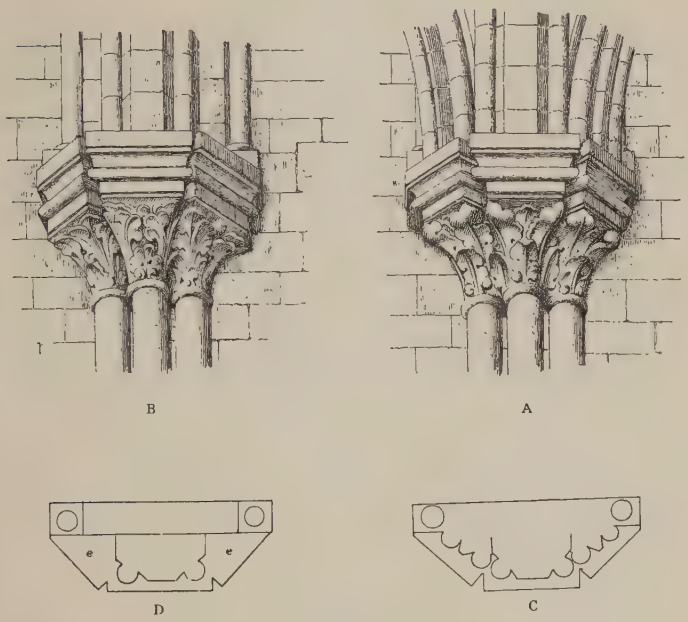

FIG. 24.

is the only one that requires a capital here. The lateral shafts ought to continue unbroken to the higher point from which the longitudinal ribs spring, as they do in the intermediate system of the choir.

In the Church of Mantes, a construction of the same epoch which bears much resemblance to Paris, the vaults are also sexpartite; and they are here prepared for by piers which are alternately massive and slender—the massive ones having all their vaulting members built up from the pavement—as at Senlis and Noyon. But the vault supports, unlike those of Senlis and Noyon, consist, as in Paris,

of three shafts both in the main and in the intermediate piers —the longitudinal ribs not being independently provided for below the springing of the vaults, but rising from shafts carried by the same capitals which support the diagonal ribs.

Sexpartite vaults occur again in the Cathedral of Laon, a building nearly contemporaneous with the nave of Paris,[1] and here we meet with still another arrangement of supports (Fig. 25). The ground-story piers are, as in Paris, simple round columns whose capitals support the vaulting shafts;

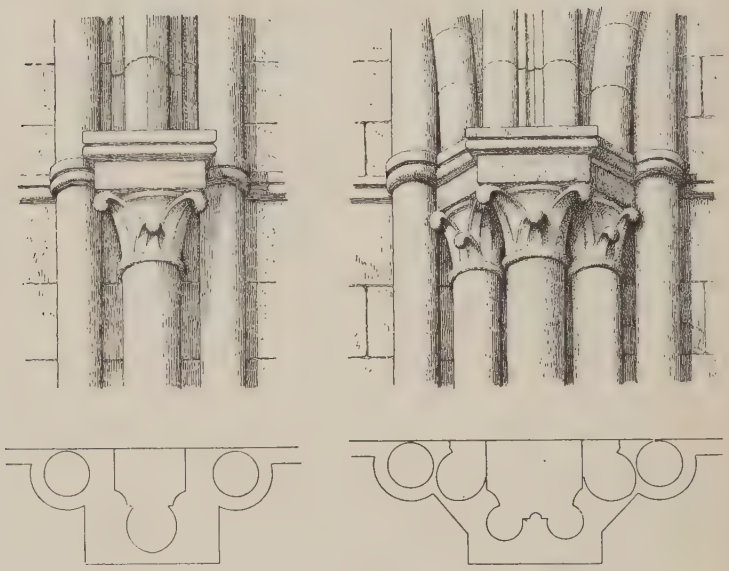

FIG. 25.

but instead of three such shafts to each pier, an arrangement which affords no provision for the alternately varying number of ribs to be carried, there are five shafts to the main piers and three to the intermediate ones, thus giving each rib in the vault its own independent support. In other words, the vaulting system of Laon is the same as that of the choir of Paris, except that the shafts which carry its longitudinal ribs, instead of resting, at the main piers, on the capitals from which the diagonal ribs spring, descend with the other vaulting shafts to the ground-story capitals. From this

[1] The Cathedral of Laon was begun almost immediately after the establishment of the Commune in 1191. See Viollet-le-Duc, *s.v. Cathédrale*, p. 305.

level, therefore, the system is as logical as the systems of Senlis and Noyon. But the want of adequate support in the lower piers for the heavy main groups is a defect which mars this otherwise magnificent interior.[1] It should be added that the vaulting shafts of Laon vary in magnitude in conformity with the weights they have to support—the central shaft which carries the main transverse rib being the largest, those which carry the diagonal ribs smaller, and those of the longitudinal ribs the smallest.

The Cathedral of Bourges, constructed mainly during the first quarter of the thirteenth century,[2] has also sexpartite vaults, and the disposition of its piers and shafts is peculiar though almost entirely logical. These piers are, in effect, gigantic round columns from the pavement to the springing of the vaults. As they rise through the arcade spandrels they leave something less than a quarter of their diameters projecting, and in conformity with the construction of the vault they are alternately massive and slender. Engaged in them are slender, coursed, vaulting shafts—not closely grouped according to the usual arrangement, but widely separated upon the great cylindrical surface. The adjustment of these vaulting shafts to the vaults is substantially the same as at Laon—the main shafts alone having capitals where the great ribs spring, while the supports of the longitudinal ribs rise unbroken to the higher level of the springing of these ribs. The one illogical feature of the vaulting system of Bourges is that its lesser shafts do not vary in magnitude according to their functions. With this exception there is hardly any Gothic building which exhibits greater constructive propriety ; for a complete structural continuity is maintained, in both main and intermediate piers, from the pavement to the crowns of the vaulting arches.

Another mode of sexpartite vault support occurs in the Cathedral of Sens (second half of the twelfth century) and

[1] In two of the piers, on each side of the nave, the great cylindrical columns are each reinforced by four lesser shafts supporting the four angles of the abacus. This and many other variations of structure which occur here and in many other of these great buildings show an ever-ready disposition to experiment as new ideas were suggested.

[2] The existing edifice was commenced during the first years of the thirteenth century, but the vaults were not reached before 1230. Viollet-le-Duc, *s.v. Cathédrale*, p. 294 ; and *s.v. Architecture*, p. 235.

in Notre-Dame of Dijon, built about 1225. In these instances the main pier has three vaulting shafts, and the intermediate pier but one—the longitudinal ribs being carried by shafts which rise from a ledge at the clerestory level.

Of these various modes of adjustment of sexpartite vaults to their supports the most logical are perhaps on the whole the earliest. In these every member in the vault has, except in the intermediate piers, its own support from the pavement; and these supports are graduated in size in conformity with the weights with which they are charged. In Bourges the continuity of support from the pavement in all of the piers makes the system of its construction more logical than that of Senlis or of Noyon, except for the defect of the equal magnitude of the vaulting shafts.

These examples are enough to show how great are the minor differences exhibited by these early Gothic buildings. No two buildings ever show precisely the same arrangements of structural parts; yet every one of them exhibits the clear apprehension by their builders of the governing principles of the new style. The differences are largely due to local and individual differences of genius. Each locality developed to some extent its own natural modes and predilections, which modified the central influence that went forth from Paris and its neighbourhood, and thus produced more or less mixed forms of art. Sens and Dijon, for instance, show the united influences of Burgundy and the Ile-de-France, Bourges is a creation of the school of Poitou modified by the central school, while the Cathedral of Reims is a product of the school of Champagne, with a large infusion of influence from that of the Ile-de-France.[1]

We have thus far considered the dispositions and adjustments of vaulting systems to vaults, for the most part in buildings of the twelfth century and of the first quarter of the thirteenth. We have now to examine these adjustments in the more fully developed structures of the thirteenth century; and it may be well to begin with the early

[1] The *Carte des Monuments Historiques de France*, prepared by the Commission of Historic Monuments for the French Government, is a valuable aid to the student in respect to the various schools and their mutual influences during the twelfth century.

developments of the piers on the ground-story level—developments which constitute one of the most interesting branches of the subject, and afford important illustration of some of the fundamental principles of the Gothic style.

In the transitional buildings with sexpartite vaults the main piers, made up of square members and engaged vaulting shafts, like those of Senlis and Noyon, could hardly be improved as regards their functional adjustment and expression. But they were so massive as to take up a great deal of room, and hence were more or less inconvenient. It was probably to avoid this inconvenience that plain round columns were employed for the ground-stories in Paris and Laon; but these round columns were soon felt to be unsatisfactory, as affording no independent supports for the various members of the superstructure. Such columns did not partake of the new principles that now characterised every other constructive member of the building. Attempts to improve them were therefore made, and a new and strictly functional form was soon devised, a very early, perhaps the first, example of which may be studied in the nave of the Cathedral of Paris.

The first step in the change appears to have been connected with a new adjustment to its load of the form of the abacus of the great capital of the round column,—an adjustment rendered necessary by the employment of two arch orders in the great arcade instead of one. In the choir of Paris the arches of the great arcade are of one order on the choir side, and of two orders on the side of the aisle, as in the plan (Fig. 26). The transverse rib, *a*, of the aisle vault is so wide that the diagonals, *b* and *c*, which are also rather wide, leave little of the abacus surface unoccupied on the aisle side; and the bases of the vaulting shafts, *d*, *e*, *f*, on the

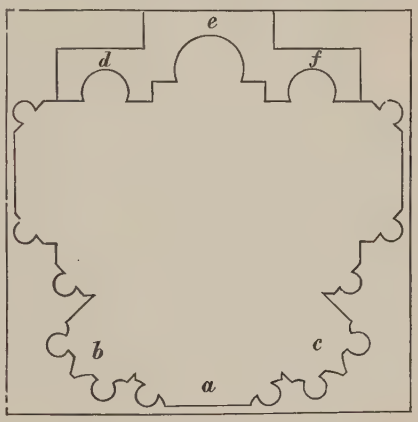

FIG. 26.

choir side are so spread out that the square abacus which carries this compound load fits it sufficiently well. But in the nave (Fig. 27), where the pier arches are of two orders on both sides, and where the vaulting shafts and the ribs of the aisle vault are smaller and more compactly grouped, the square abacus is not so well fitted to its load. Large portions of its surface, *a*, *b*, *c*, and *d*, are left unoccupied, notwithstanding that its corners are cut away in order to diminish this useless surface. But with this measure the builders appear not to have been satisfied; and in order to give the lower pier a more functional correspondence with

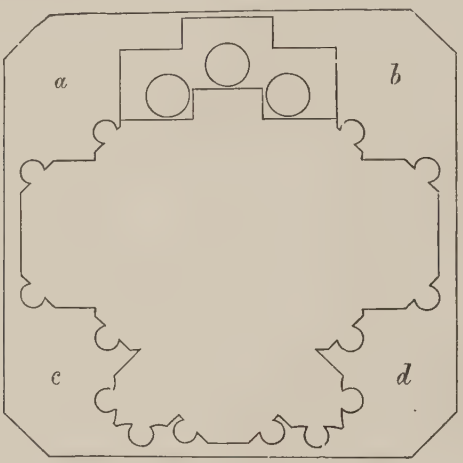

FIG. 27.

the superstructure, they before long did away with the device of terminating the pier by a capital at this level, and starting afresh to erect upon it the high vault supports. As a final result the true Gothic pier was produced in which all the vaulting members receive continuous support from the pavement, substantially as in the main piers of Senlis and Noyon, but superior to these by exhibiting the utmost compactness consistent with the complete discharge of their function.

The first modification in the nave of Paris occurs in the sixth pier counting from the transept. Here a smaller column, to augment the support of the vaulting shafts, is incorporated with the great round column, and corresponding additions are made to the great base and to the capital.

Larger portions are cut off from the corners of the abacus, whose plan, thus modified, is shown in Fig. 28, while a section of the pier is shown in Fig. 29. Piers of similar section had occurred earlier in the choir of Noyon, and even in some

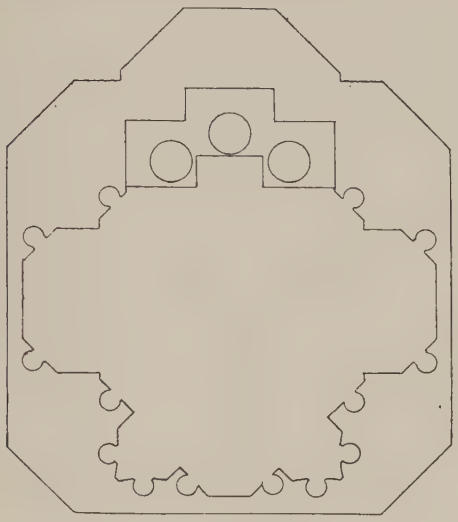

FIG. 28.

Norman buildings, as in the transept of Ely in England; but in these cases they are not, as they plainly are in Paris, links in a chain of progress. This was, however, but a partial, and perhaps on the whole even a doubtful, improvement. It provided an independent support for the vaulting shafts, but left the archivolts and the ribs of the aisle vaults without such supports. It had, moreover, an awkward appearance, and the abacus of the capital was still ill adjusted to its load. It was next seen that if the vaulting shafts were to have separate support in the lower pier, the other members of the superstructure ought to be supported in like manner. Accordingly in the seventh and westernmost pier this idea was carried out, and an almost perfect Gothic pier was constructed—a pier which furnished the type that was henceforth employed with many variations of proportion and detail, and which attained its

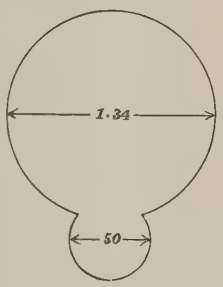

FIG. 29.

highest perfection in the nave of the Cathedral of Amiens. The section of this pier is shown in Fig. 30, its abacus surface with the plan of the imposed load, in Fig. 31, and a perspective view taken from the opposite triforium, in order to show as much as can be seen of the upper surface of the abacus and of the form of its load, is given in Fig. 32. It will be seen on the plan that the portion of the abacus which covers the capital of the great round column is now circular; that the abaci of the lesser capitals of the engaged shafts are square in agreement with the sections of the sub-archivolts and of the transverse rib of the aisle vault, which they respectively support; and that over the engaged column, which falls under the vaulting shafts, a portion of the great

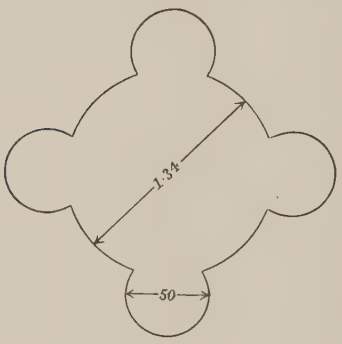

FIG. 30.

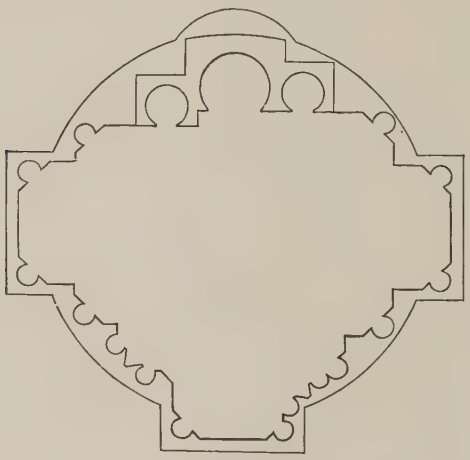

FIG. 31.

abacus projects in a segmental curve, forming a band to this column, which is not provided with a capital — partly, perhaps, because it is really the lower member of the group of vaulting shafts which have their capitals at the springing of the vaults, and partly also because a capital here would

present a much greater abacus surface than the bases of the

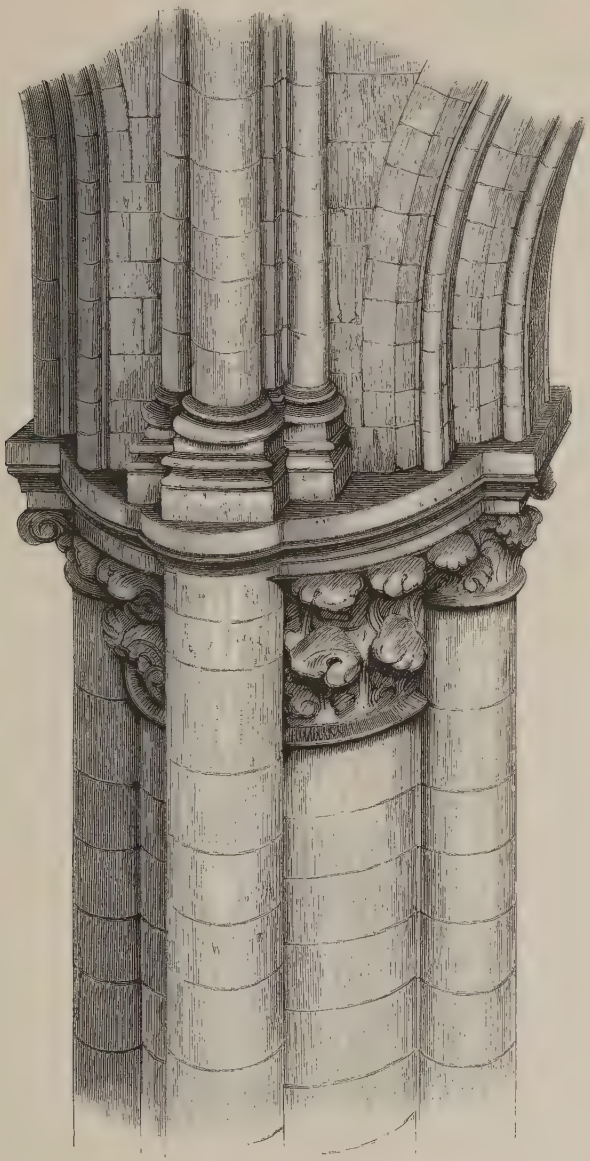

FIG. 32.

vaulting shafts would cover. The unsymmetrical plan of the impost (Fig. 31), where one of the lateral vaulting shafts

advances forward of the other, is caused by the thickening of the arcade spandrel on that side in order to reinforce the great piers of the western tower. The adjustment of this compound abacus to its load could hardly be improved; there is even less unoccupied space here than in the square abacus of the choir already noticed. The form of the compound capital, as shown in the perspective view, is also admirable, the lesser heights of the smaller members being well proportioned to their lesser diameters, and these again harmonising well with the central mass. The entire group is one of the most beautiful, as it is also one of the grandest, in the whole range of Gothic design.

Another mode of reinforcing the lower pier is that which occurs in the nave of Laon (section, Fig. 33), as an exception to the plain round columns which form the prevailing support. In this case five detached monolithic shafts are grouped with the great cylinder, four of them being placed so as to support the angles of the abacus, and the fifth sustaining the central member of the group of vaulting shafts. This is certainly, in many respects, a fine pier, but it is not so compact, nor so consonant with Gothic principles, as that of Paris. It was, therefore, not so well worthy of adoption, and in fact it was not employed elsewhere.

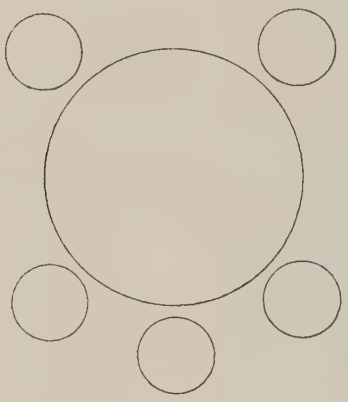

FIG. 33.

The lower piers (A, Fig. 34) of the choir of Soissons are interesting as being designed on the same general principle as the sixth pier of Paris (B, in the same figure), while exhibiting a marked improvement upon it. Here the engaged column is more slender than at Paris, and instead of an independent abacus to its capital, the octagonal abacus of the great capital is made to project so as to cover it. The engaged column being a part of the original design and not an experimental interpolation, as at Paris, the whole lower pier is so adjusted to the superstructure as to bring this smaller column fairly under the vaulting system to be sustained.

Another improvement is that of the diagonal positions given to the plinths of the lateral vaulting shafts in correspondence with the positions of the vaulting capitals. These plinths are thus parallel also with the sides of the great abacus, where it projects to cover the capital of the lower vaulting column ; the adjustment of the great abacus to its load is,

B A

FIG. 34.

moreover, as close as possible, and the whole design is both compact and elegant.

We may now examine the vaults and vaulting systems of the more advanced Gothic of the first half of the thirteenth century, in which the continuity of members, from the pavement upwards, becomes an unvarying principle. Not that every individual member of the superstructure now has an independent support from the foundation, but there is at least one independent shaft on the ground-story level sustaining each main group above.

From the beginning of the thirteenth century the

quadripartite vault, which was now greatly improved in form, came into general, though not invariable,[1] use; and in connection with it the form of the lower pier, which had been developed in the west bay of Paris, was generally adopted.

The improvements in the vault consisted in replacing the round longitudinal arch—such as that of the choir of Noyon and of St. Germain des Prés—by a pointed arch (such as had been employed in the sexpartite vaults of Paris, and other contemporaneous buildings); and in making the crowns of all the arches reach more nearly to the same level, thus doing away with the excessive doming that had characterised the earlier quadripartite vaults.

There is one most important characteristic of French-Gothic vaults that often passes unnoticed, the real significance of which has not, I believe, as yet been explained by those writers who have noticed it. It is that (alluded to above, page 39, in connection with the vaults of the Abbaye-aux-Hommes at Caen, and of Notre Dame at Paris) of the twisted surfaces caused by stilting the longitudinal arches, so that their springing begins at a much higher level than that of the main arches.

A frequent misunderstanding of the Gothic vault has arisen from supposing that, by taking advantage of the properties of the pointed arch, all its ribs were made to spring from the same level and reach the same height, however they might vary in span.[2] It is indeed true that the use of the pointed arch made this possible, but it is equally true that in strictly Gothic vaults the pointed arch was never so used; in such vaults the longitudinal rib was always stilted. This fact is noticed by Willis,[3] who merely remarks in relation to it that "it is a very universal arrangement of clerestory vaults, and is productive of great beauty and convenience, but it leads to some difficulty in the form and arrangement of the vaulting surface." Other writers have supposed that this arrangement was intended to provide for largeness of clerestory

[1] The sexpartite vaults of Bourges date from the latter part of the first half of the thirteenth century. Those of the choir of Beauvais are still later. But though thus sometimes still employed, the sexpartite form had now become as unusual as, nearly a century before, the quadripartite form had been.

[2] See, for instance, Ferguson's *History of Architecture*, vol. i. p. 517.

[3] In his essay on the Construction of the Vaults of the Middle Ages, published in the *Transactions of the Royal Institute of British Architects for the Year* 1842.

openings. Thus Sir Gilbert Scott[1] says, "The side arches were sometimes stilted, not from any necessity, but merely to afford greater space for clerestory windows." But that it was not adopted because it was productive of beauty or convenience, nor to afford greater space for clerestory windows, a just consideration of the structural exigencies involved would show beyond question, even if it were not proved by the fact that the same peculiarity is frequent long before the clerestory opening is developed so as to fill the whole space beneath the longitudinal rib. In fact, the opening occupies but a comparatively small portion of this space in all early Gothic buildings, as may be seen in Paris, in Mantes, in Laon, in St. Leu d'Esserent, in the Collegiate Church of St. Frambourg at Senlis, and in many others. Fig. 35, a perspective view of one bay of the clerestory of St. Leu d'Esserent, will illustrate this point. Here the springing, *a*, of the longitudinal rib will be seen to be above the springing, *b*, of the main ribs by almost half the vertical height of the vault. It will be seen, too, that the intrados of the flying buttress, visible through the window, meets the pier at the same level. It is well known that the thrusts of the great vault ribs are not confined to their points of springing, but that there is a tendency in the arches, when firmly abutted at these points, to rise at their haunches, in consequence of which they require to be reinforced in these parts. Now the method here employed by which the line, *a*, *b*, is made to rise vertically to the level, *a*, brings the triangular vault surface, *b*, *a*, *c*, into a plane, which is inclined to the pier in the direction of the thrust of the diagonal rib; and as the diagonal rib of the next adjoining compartment, with the corresponding portion of vault surface, is inclined to the same pier in the opposite direction, the obliquity of each pressure is neutralised; and as the haunch of the transverse rib is reinforced by a solid filling-in, a perfect concentration of thrusts upon the pier is secured—the greatest power of these thrusts falling where the flying buttress is brought to bear.[2] The horizontal

[1] *Lectures on the Rise and Development of Mediæval Architecture*, vol. i. p. 63. London, 1879.

[2] This was the intention, but actually the flying buttresses are not brought to bear precisely on the points of greatest thrust in St. Leu d'Esserent, as will be seen farther on.

section (Fig. 36), taken at the level, *a* (Fig. 35), will more fully explain the form of this portion of the vault and the manner in which the pressures are gathered upon the pier.

FIG. 35.

Here *a*, *b*, and *c* are the great ribs whose thrusts, in the direction of the arrows, are concentrated upon the pier, *d*, and are counterbraced by the flying buttress, *e*. In other words, the section through the vaulting conoid at half its

vertical height gives the triangle, *a*, *b*, *c*, in A, and not the square, *a*, *b*, *c*, *d*, in B in the same figure.

No single feature could be chosen which would exhibit more clearly the essential principles of Gothic construc-

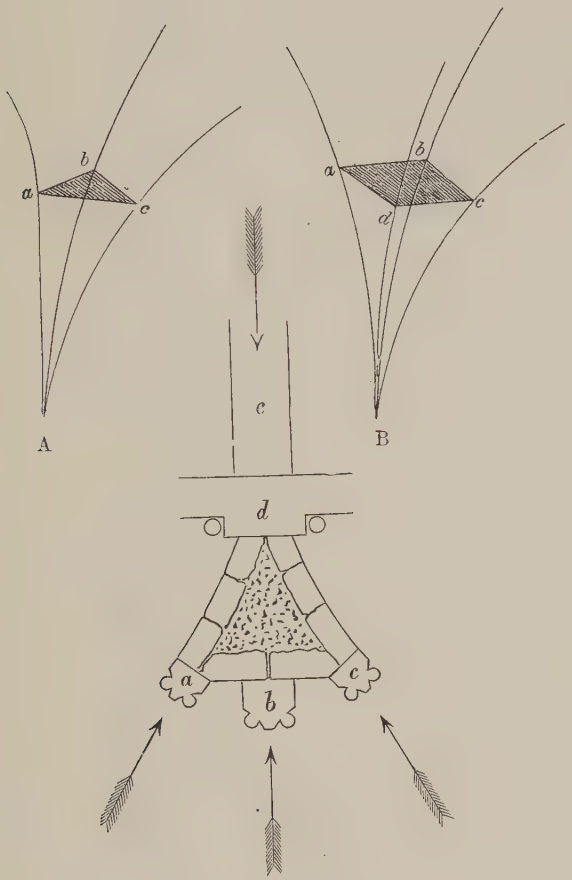

FIG. 36.

tion. It exhibits, in fact, its governing characteristic, upon which, more than upon anything else, every other characteristic depends. And in view of this hardly any one can fail to see the error that even so learned an authority as Sir Gilbert Scott commits when he remarks that the stilting of the clerestory arches did not arise from any necessity, but was effected merely to afford greater space for clerestory windows.

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Without this concentration of thrusts, as far up as they extend, that compactness of the pier, which is so essential to the Gothic system, could not exist.

How this form of the clerestory was afterwards taken advantage of for larger openings we shall see when we come to consider modes of enclosure. For the present we must confine our attention to the forms and adjustments of the vaults, the vaulting supports, and the general framework of the buildings of the early thirteenth century in France. Meantime, however, it may be remarked that the ribs of the vaults of these, as of the earlier buildings, consist only of such as have a constructive office—namely, the transverse, the diagonal, and the longitudinal ribs. Ridge ribs and surface ribs, which sometimes appear later, do not occur at this epoch. Of the constructive ribs none are ever wanting, nor are independent supports for them ever wanting in the piers. Throughout the building there is a structural reason for every member that meets the eye, though the degree of perfection with which minor structural exigencies are met continues to vary.

In the nave of St. Leu d'Esserent, whose vaults we have just considered, the lower piers and the vaulting shafts are wrought substantially on the model of those of the western-most pier of Paris ; but they differ in having a complete capital over the engaged column which sustains the vaulting shafts, as well as in having the central portion of the great abacus in the form of a square set diagonally to the axis of the nave, instead of a circle, and also in having the longitudinal rib shaft rest upon the clerestory ledge instead of resting upon the same capital which carries the diagonal rib. This nave is one of the very earliest of the constructions of the thirteenth century, and its design, in many points, resembles rather the work of the latter part of the twelfth century—to which epoch it might be supposed to belong were it not for the forms of the lower piers, the character of its capitals, and the forms of the clerestory openings which shall be noticed farther on.

The nave of the Cathedral of Chartres followed quickly after that of St. Leu, which it closely resembles in main features, though the design is carried out on a much grander scale. Here the vaults, which in St. Leu are constructed

on very low arches, are more acutely pointed; even the diagonal ribs having the pointed form. The stilting of the longitudinal rib is still more marked in these vaults; its

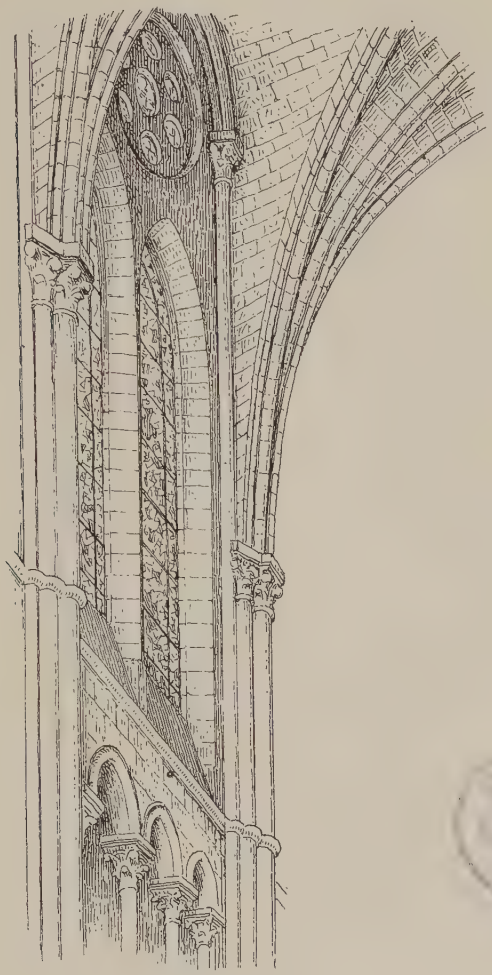

FIG. 37.

springing being more than half the vertical height of the vault above the springing of the great ribs, and the principle of concentrated thrusts upon the pier is therefore more distinctly emphasised (Fig. 37). The lower piers are alternately round columns with engaged octagonal shafts,

and octagonal columns with engaged round shafts. The main vaulting column has no capital, but is simply banded by the abacus moulding, as in the westernmost pier of Paris. The great abacus is in form like that of St. Leu, except that over the main vaulting shaft it assumes the curve of the band just mentioned. Five vaulting shafts, instead of three, as at St. Leu, rise from this abacus, the shaft of the longitudinal rib descending with the rest to this level. These shafts are in three magnitudes corresponding with the magnitudes of ribs, which they respectively carry. The great compound pier capitals are admirably proportioned ; and the arrangements and proportions throughout—those of the vaults, the piers, the ground-story arcade, the triforium, and the clerestory—make up a whole which is perhaps the most harmonious that had been devised up to its date, and one that was hardly ever surpassed, notwithstanding its comparatively massive construction.

In the Cathedral of Reims, the lower portions of which, with exception of the westernmost bays, are contemporaneous with Chartres,[1] the structural system is again substantially the same, though the proportions and the general style of the details differ considerably. The narrow arches of the vaults are stilted in the same manner, the vaulting shafts vary functionally in magnitude, and they all descend to the capitals of the lower piers, which piers are of the type of Paris, St. Leu, and Chartres. The great compound capitals are, however, not so well composed as those of Chartres, since the smaller members are of equal height with the central ones. As in Paris and Chartres, the main vaulting shaft has no capital, though it has much the appearance of possessing one in consequence of the carved ornament with which it is banded.

We now come to the building in which the greatest perfections of the Gothic system are realised—the nave of the Cathedral of Amiens, which was begun in the year 1220. Not only is this nave the grandest in scale of any in France—being in height forty-two metres from the pavement to the crown of the vault, and in width nearly fifteen metres from centre to centre of its piers,—but its design may justly be considered as the crowning glory of Gothic art, and the

[1] The Cathedral of Reims was begun in 1212. Viollet-le-Duc, *s.v. Cathédrale*, p. 315.

grand summing-up of the principles and constructive forms that had been gradually taking shape since the beginning of the twelfth century. At first glance it may appear that the longitudinal rib is not so much stilted as are those of the buildings before noticed; but this is only because the capitals of their shafts are not situated at the true impost level. The arch is really stilted above these capitals, so that the vault surfaces continue to rise vertically for a considerable height above the springing of the great ribs, whose pressures fall directly upon the pier (Fig. 38), as in the previous examples.

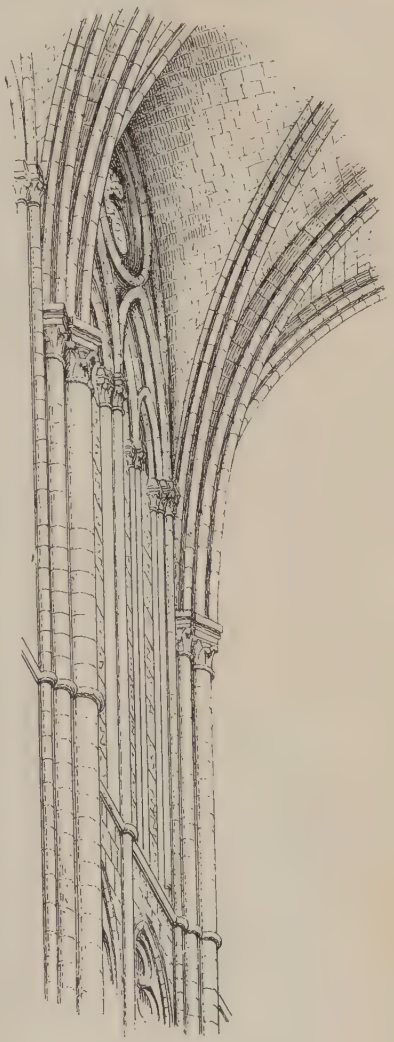

FIG. 38.

The main vaulting shaft is now, for the first time in a quadripartite vaulting system, perfectly continuous from the pavement; that is to say, it is not sustained by a separate member in the lower pier, as at Paris, Chartres, and Reims; and it is not only continuous, but it also has the same diameter throughout. The shafts of the diagonal ribs rest upon the great pier capital as before, and those of the longitudinal ribs are brought down to the triforium ledge, uniting the clerestory and triforium into one composition in a manner which finds earlier illustration in the choirs of St. Germain des Prés and St. Remi of Reims, and further development in St. Denis and Sées. The abaci of the capitals are everywhere adjusted in form to the sections of the members which they carry; and those of the vaulting shafts are set in the directions of the ribs which they sustain.

I have remarked above that no Gothic building unites all the perfections of which the entire group affords illustration; but of the nave of Amiens it may be said that a more admirable carrying out of Gothic principles can hardly be imagined.

The nave of St. Denis resembles in some of its features, though not in its proportions, that of Amiens, to which it is not long subsequent in date. Its vaults, however, are in form more like the earlier ones of which those of the Church of St. Leu d'Esserent are an instance. Their arches are of low sweep, and do not give to the vaults so much soaring expression as was common in contemporaneous constructions. The lower piers are largely a return to the Romanesque type—consisting of square members with engaged shafts, as in the section, Fig. 39. The three principal vaulting shafts rise without interruption from the pavement, while those of the longitudinal arches rest, as at Amiens, upon the triforium ledge. In the choir still another vaulting system is employed. Here the lower piers are plain round columns, against which the group of principal vaulting shafts rise, cutting through their capitals, and to these capitals the shafts of the longitudinal ribs descend, so that above the ground-story there are five shafts against each pier, as at Chartres and Reims.

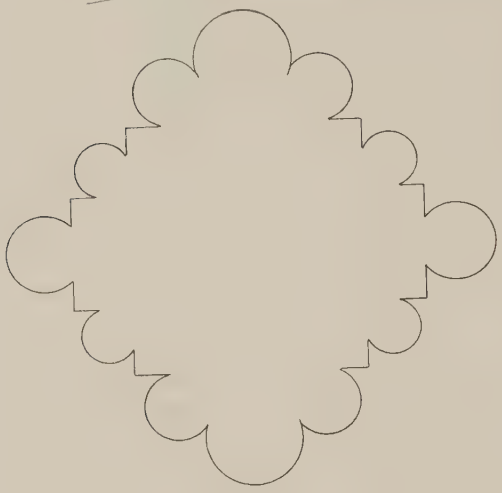

FIG. 39.

The enormous, though ill-proportioned and yet magnificent choir of Beauvais presents, as it now exists, no new features in its vaulting system. The existing sexpartite vaults are not of the original design, but were probably constructed towards the end of the thirteenth century when, after serious ruptures had taken place in consequence of faulty con-

struction, intermediate piers had to be introduced, and the whole design to be largely remodelled.[1]

Minor differences of adjustment in the internal vaulting systems of the French churches of this time are no less frequent than in those of the earlier times; but the general

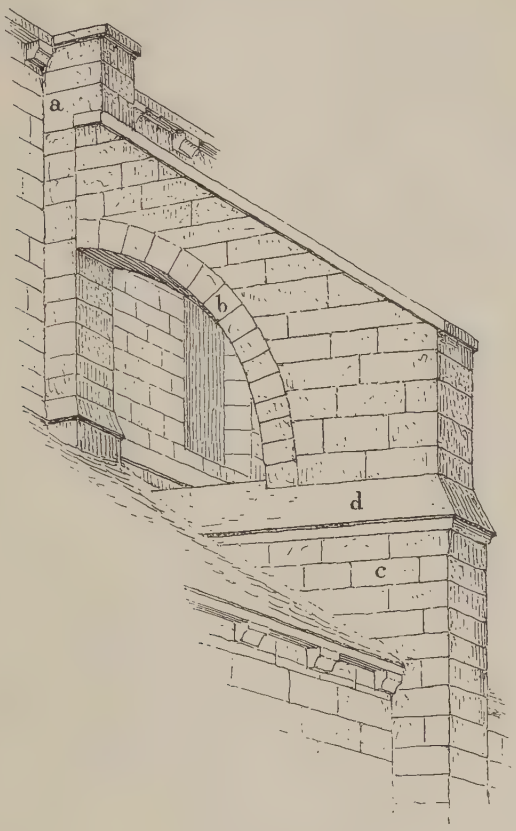

FIG. 40.

principles which govern them are everywhere the same; and, as we have now considered the main types of construction, we need not investigate them further, but may pass to the consideration of the forms of external support which complete the anatomy of the Gothic structure.

One of the earliest remaining examples of a Gothic buttress system is that of the Church of St. Martin of Laon

[1] See Viollet-le-Duc, *s.v. Cathédrale*, p. 336.

(Fig. 40). The pier buttress, *a*, which is incorporated with that portion of the internal pier upon which the vault thrusts are gathered, is a plain, square-edged mass of masonry reinforced by a flying buttress, *b*, which springs from the great outer buttress, *c*, the one inert member of the structure. The flying buttress is a square-edged rampant arch loaded with masonry, whose upper surface is brought into a right line which slopes a little less steeply than the chord of the arc, and is covered by a plain flat coping. The very massive lower buttress, *c*, is adjusted to the flying buttress, *b*, by a simple set-off, *d*, which penetrates the roof of the aisle, and is carried on a substructure of masonry over the transverse arch of the aisle, abutting against the pier at the springing of the vaults. These vaults are thus effectually propped both at their haunches and at their springing, but the whole construction is somewhat needlessly heavy.

Flying buttresses of lighter construction occur in the apse of St. Leu d'Esserent (Fig. 41), which dates from the last quarter of the twelfth century, or perhaps a little earlier. The pier buttress does not, in this system, rise above the abutting arch—the semicircular wall of the apse presenting an unbroken surface above this level, while below this point it is of the same form as that of St. Martin of Laon. The lower or outer buttress has three set-offs and rises to a considerable height above the roof of the aisle before the arch, whose intrados is set even with its inner face, springs. The back of the flying buttress is no longer a continuous sloping right line extending to the outer face of the system, but it is met by a level surface in which the outer portion of the buttress terminates, and the whole is covered, as at St. Martin, by a flat coping. In this case no portion of a lower prop is visible above the roof, though there probably is one beneath it.

Some improvements upon these forms are shown in the buttresses (Fig. 42) of the nave of the same building, which date from the end of the twelfth, or the beginning of the thirteenth century. The buttresses of the apse, by the number and depth of their set-offs, indicate that the builder considered their efficacy to depend upon a far-projecting foundation from which, by an inclined outline, somewhat of an oblique action, from the ground upwards, should be

secured; but it was soon seen that the same result might be reached on a less projecting foundation by giving more weight to the upper part of the buttress.[1] Accordingly the outer faces of these buttresses of the nave rise more vertically and have a more equal volume at different levels. A further improvement which they exhibit is that of the gabled form

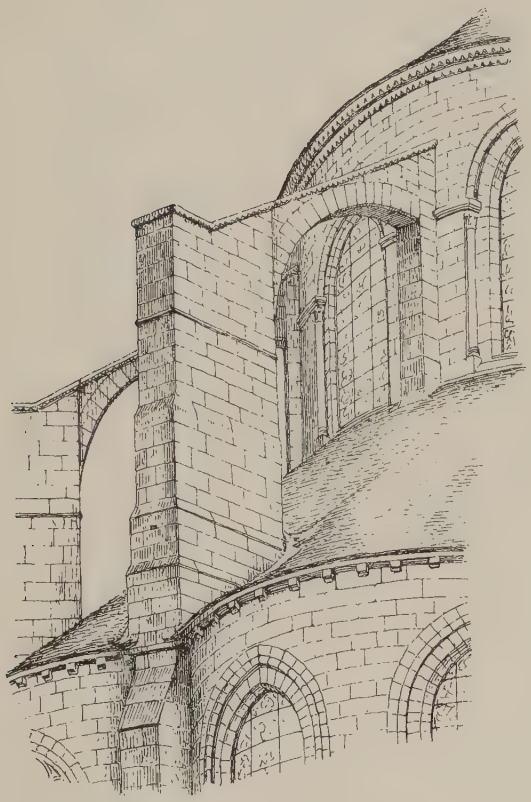

FIG. 41.

in which their tops terminate—a form which is better adapted for protection, as more readily shedding water, and one which is also more pleasing to the eye. The pier buttress is, like that of the apse, stopped at the level of the coping of the flying buttress, the wall above being entirely unbroken throughout its length, which is the case also in some other undeveloped Gothic buildings, as in the apse of St. Remi of

[1] See Viollet-le-Duc, *s.v. Contre-Fort*, p. 297.

Reims, and, I believe, also in that of St. Germain des Prés of Paris. This pier buttress is not, as in the preceding examples, in the form of a continuous pilaster-like member, but is based upon a substructure (*a*, Fig. 42), which rises

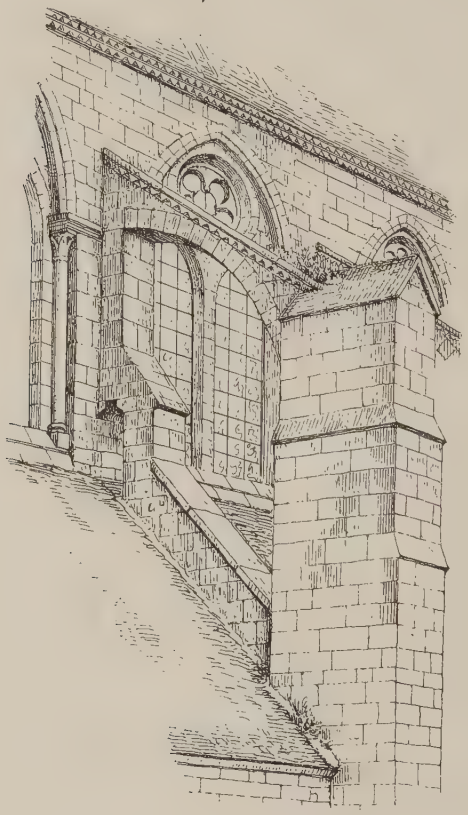

FIG. 42.

through the roof and is carried above the transverse arch of the aisle vault.

Many of these early flying buttresses were ill adjusted from want of accurate knowledge where they should abut. It required repeated experiment to teach the precise points upon which they should be brought to bear. This flying buttress of St. Leu effectually meets the higher pressures exerted by the vault haunches, but those at the springing were not securely braced. It was apparently thought that

the substructure *a*, including that portion of it which is beneath the aisle roof, would form a sufficient abutment to these lower pressures, but this did not prove to be the case. The piers subsequently yielded at the springing, and it was found necessary to add a second arch beneath the first. Experience, in fact, showed that the pressures of a vault cannot be concentrated upon any single point, but only upon a line which extends over a considerable portion of the pier from the springing point upwards.

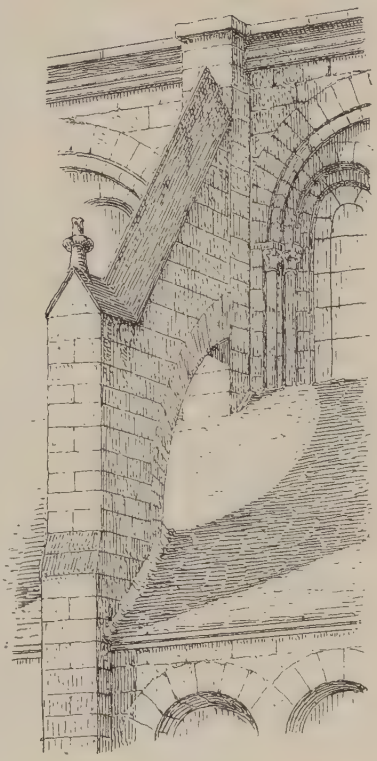

FIG. 43.

In the buttress system of the nave of Noyon (Fig. 43), which dates from the time of the reconstruction of the vaults early in the thirteenth century, the flying buttress assumes an improved form, in being both narrower and deeper, thus covering at once a greater vertical and a diminished lateral extent upon the pier, —a form more in accordance with the exigencies of the vault pressures. The intrados of the flying buttress, which in St. Leu is on a level with the impost of the longitudinal vault rib, is here in Noyon considerably below this level, while its upper part reaches as high as that of St. Leu; and instead of a shallow clerestory buttress terminating where the arch abuts, there is a vigorously salient one reaching to the top of the wall. The flying buttress is thus brought to bear upon a line (which is already considerably fortified by a pier buttress) rather than upon a point. Just what the form of the structure may be under the roof I am not aware; but as this nave has a high vaulted triforium gallery, there is doubt-

less an abutment of some kind carried over its vaults to meet the pier at the springing of the high vaults. It may be added that this buttress system has proved effectual, the vaults having stood without yielding for more than six hundred years. As a minor improvement the back of the flying as well as the top of the upright buttress assumes the gabled form, and a small finial marks the first attempt to render pleasing by ornament this latter important functional member.

FIG. 44.

In the choir of Soissons, a monument but little subsequent in date to the time of the reconstruction of the buttress system of Noyon, still further improvements were made in the form of the flying buttress. Here two arches, one above the other, were established, and resistance to the thrusts of the vault was thus distributed vertically over a yet greater portion of the pier. The top of the inner half of the outer buttress is here carried up above the back of the flying buttress, helping by its weight to neutralise the vault pressures, and preparing the way for the pinnacle which was soon after introduced. The pier buttress assumes under each arch the form of an engaged shaft with base and capital. Shafts in this place had occurred earlier in the buttress systems of St. Remi of Reims and the choir of St. Germain des Prés, and they now became very frequent features.

The flying buttresses of Soissons were quickly followed by a beautiful variation on the same principle in those of the Cathedral of Chartres, where the superposed arches are united by an open shafted arcade. Henceforth the employ-

ment of two arches in the buttress system became practically constant; and perhaps the grandest illustration of the type is that which is afforded in the nave of Amiens (Fig. 44). In double-aisled buildings a double system of flying buttresses was introduced, one system over each aisle. In these cases the dividing piers of the aisles rise through the aisle roof, above

FIG. 45.

which they receive the heads of the outer system of arches and give foothold to the inner one. The flying buttresses of the apse of Reims (Fig. 45) are of this form.

The evolution and adjustment of the pinnacle, which is so conspicuous a feature in this last example, was rapid after the device of weighting the top of the buttress had been introduced. At Chartres, where the superincumbent weight terminates in a truncated oblong pyramid in place of the

gabled coping of Soissons, we get one of the intermediate steps of this development; but at Chartres this weight is still placed over the inner portion only of the buttress; it was presently seen, however, that it would be more effectual if set farther out upon it. Accordingly at Amiens (Fig. 44)[1] this weight is set flush with the outer face of the buttress, in the form of an upright square mass of masonry crowned by a steep pyramid, and the Gothic pinnacle stands forth in essential completeness. But the inventive faculties of the Gothic artists were fertile in variations upon this feature in which the constructive and decorative functions are so equally joined; and among the grandest results of their inventive activity are the pinnacles of Reims, which date from about 1240, and combine in one magnificent design the forms both of Soissons and Amiens. In this design the inner portion of the buttress, capped with a gable, rises far above the solid part of the outer portion, receiving the thrust of the upper abutting arch; while over the outer portion is an open-shafted canopy of elegant design, surmounted by a massive octagonal pyramid and by four lesser pyramids covering the angles of the square base on which they rest.

Thus the forms of these external supports, no less than those of the interior, were gradually developed as the mechanical exigencies involved were more and more perfectly apprehended. But, as with everything else in the Gothic system, a fine artistic spirit was always equally and simultaneously operative, which made beauty of form as imperative as constructive fitness; and hence these hard-working members are also among the most ornamental features of the Gothic edifice, so much so that their important constructive office has sometimes been largely lost sight of.[2] But in French Gothic, after 1160 at the latest, the stability of the structure is always absolutely dependent upon this member.

From the vaults and their internal and external supports,

[1] The upper portions of the buttresses of Amiens have been remodelled in the Flamboyant style. The pinnacle given in the illustration is taken from Viollet-le-Duc, *s.v. Cathédrale*, Fig. 20, p. 329.

[2] An eminent English architect recently remarked to me that, in his opinion, the flying buttress was not really necessary to the stability of a vaulted building, citing, in support of this opinion, the nave of Salisbury Cathedral, where the external flying buttress does not occur.

which together constitute the real structure of a French Gothic building, we may now pass to the development of the Gothic modes of enclosure. In early Gothic buildings massive walls filled the spaces between the piers much as they had done in Romanesque constructions. The openings remained small and were often even round arched, as at Senlis and Noyon. The nave of the Cathedral of Paris

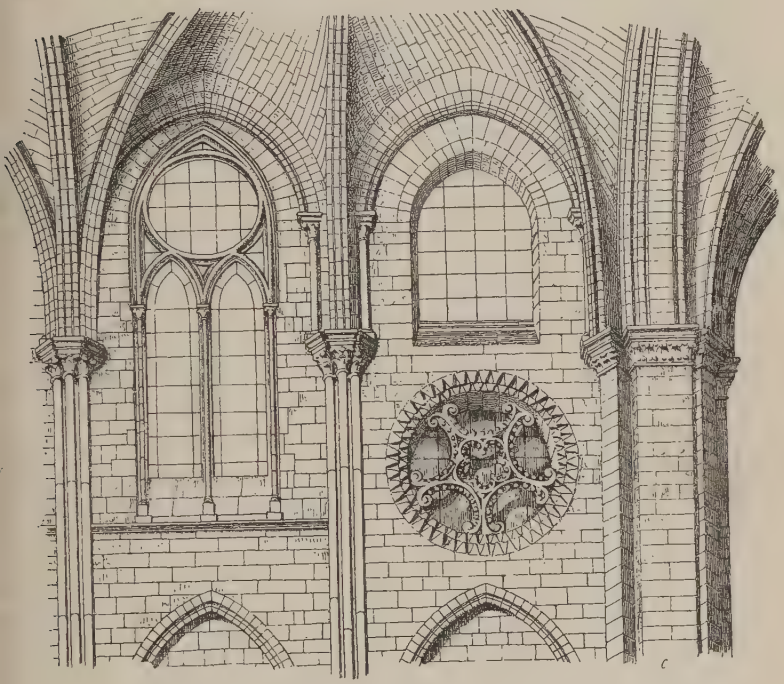

FIG. 46.

affords a good illustration at once of the early forms of wall and opening, and of the changes that were quickly introduced as the Gothic idea began to take more distinct form in the minds of the builders. Of the two bays of the clerestory of that building shown in Fig. 46,[1] the one on the spectator's right retains its original form. It is the bay next the transept—the great pier, *c*, being one of the four piers of the crossing. In this bay the clerestory window is a simple

[1] This being a perspective view, looking upwards from the opposite triforium, all the forms appear a little foreshortened.

pointed arched opening above the level of the springing of the vaults, and although larger than such openings had been in Romanesque design, it nevertheless is simply an opening in a wall, the area of the solid still being greater than that of the void. Beneath the clerestory is a circular opening, filled with a peculiar and beautiful form of tracery, occupying the space between the vaults of the triforium gallery and the timber roof which covers them. The whole design is one that exhibits a good deal of massive wall space, and an eye not quick to recognise leading structural features might not readily perceive that this is really a building whose stability resides not in its walls, but in its framework.

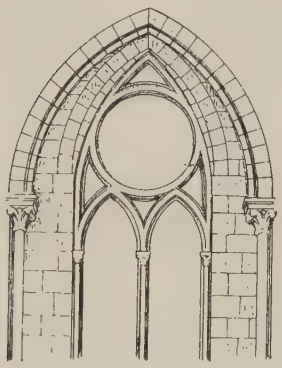

FIG. 46 *bis.*

Early in the thirteenth century the original vaults of this nave, which had been completed in the preceding century, were damaged by fire and had to be repaired.[1] It would appear, indeed, that their lateral cells were wholly reconstructed and somewhat changed in form ; for the longitudinal arches of the original cells which remain in place fall considerably below the present vault surfaces,[2] as may be seen in Fig. 46. Contemporaneously with this repairing and remodelling of these nave vaults great changes were making in other parts of the building—chiefly in the clerestory—in conformity with developments that had elsewhere taken place. These developments consisted chiefly in the enlargement of apertures, and in the dividing of them by mullions and simple forms of tracery. The apertures of the

[1] Viollet-le-Duc, *s.v. Cathédrale*, p. 292.

[2] They do so in some, though not in all, of the bays. Indeed, great and very puzzling variations are exhibited in the different bays of this clerestory. For instance, in the first five bays on the north side of the nave, counting from the choir, the original longitudinal ribs are surmounted by other arches, in each of which the extrados is more acutely pointed than the intrados, which follows the form of the old arch, thus giving a more pointed form to the vault cell than it had originally. But the sixth, seventh, and eighth bays have their old arches raised by stilting to the new level, and thus these cells have the same form that they had originally. In the sixth and seventh bays the outline of the window head is not concentric with the archivolt, but is rendered more pointed by a singular filling-in, as shown in Fig. 46 *bis*.

ave of St. Leu d'Esserent (Fig. 47) show the first step of his development in the grouping of two or more openings nder one enclosing arch. Grouped openings had, indeed, been employed much earlier. Twin round-arched windows occur in the clerestory of Noyon; and in the triforium of

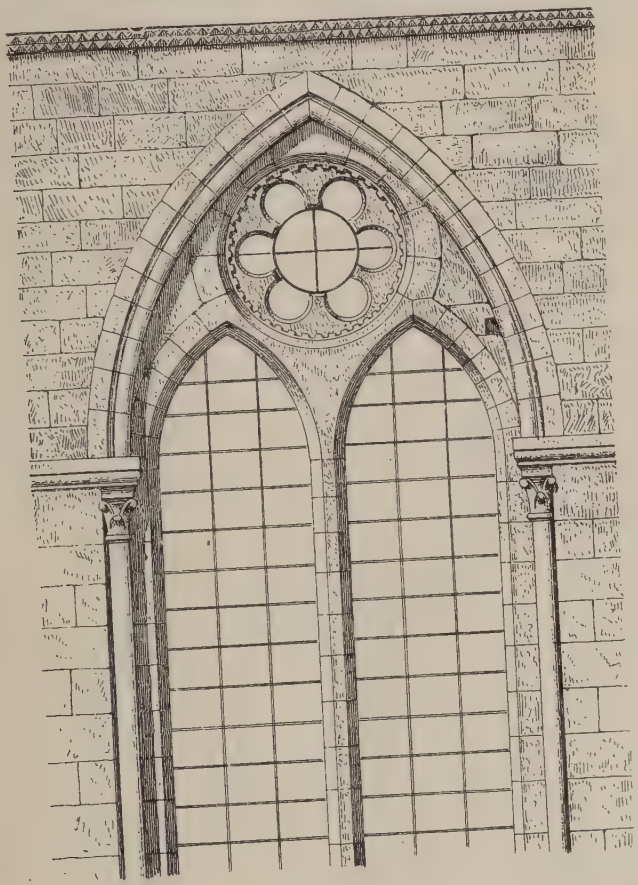

FIG. 47.

St. Germer (Oise) coupled round arches surmounted by a circular opening occur. The same arrangement is partly carried out at a still earlier date in the triforium of the Norman Church of Cerisy-la-Foret (Manche), where the circle over the arches is not pierced through the tympanum, but is formed by a moulding on its face. In the triforium of the nave of Noyon are coupled pointed arches with a

pierced trefoil in the tympanum above. But already a new and far-reaching development of these germ forms had begun whose progress was most rapid. In the clerestory openings of St. Leu we have coupled pointed arches surmounted by a circle, within which is a thinner plane of masonry pierced with a six-foiled opening. Internally the longitudinal rib forms an encompassing pointed arch to the group, and externally there is a similar arch in the wall which projects beyond the plane of the grouped openings, throwing the design into two orders, as in Fig. 47. Windows like these of St Leu, though more enriched in having moulded archivolts and shafted jambs, occur also in the clerestory of the choir of Soissons. In these examples we have the radical forms of a great variety of subsequent Gothic apertures.

As I have before remarked, constructive development was the moving cause of change in every portion of the building, and the enlargement of the apertures was rather due to the nature of the construction than a result of endeavour to produce a beautiful and imposing effect, though such endeavour doubtless became also operative as constructive development went on.

The apertures of the clerestories of St. Leu and of Soissons were followed almost immediately by those of the apsidal chapels of the Cathedral of Reims, which date from about 1215, and though designed on the same general scheme, present an entirely new character (Fig. 48). For here, instead of solid spandrels between the main openings, we have lesser openings following the outlines of the larger ones; and thus instead of grouped openings we have rather a single opening divided by slender bars of stone. Moreover, these bars are no longer left, like the former pierced masonry, with plain flat surfaces, but are lightened and enriched by mouldings which, on the jambs and on the mullion, assume the forms of slender shafts with capitals and bases. In short, what may be called the pierced plane of masonry of St. Leu is here converted into Gothic tracery.

The great change referred to above, which was wrought soon after its first completion in the clerestory of Paris, consisted chiefly in substituting for the old ones openings like those of the apsidal chapels of Reims. But these new openings of Paris mark one further step in the development of tracery.

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The tracery of Reims, as will be seen in the figure, is made up of many small pieces of stone jointed as in ordinary arch

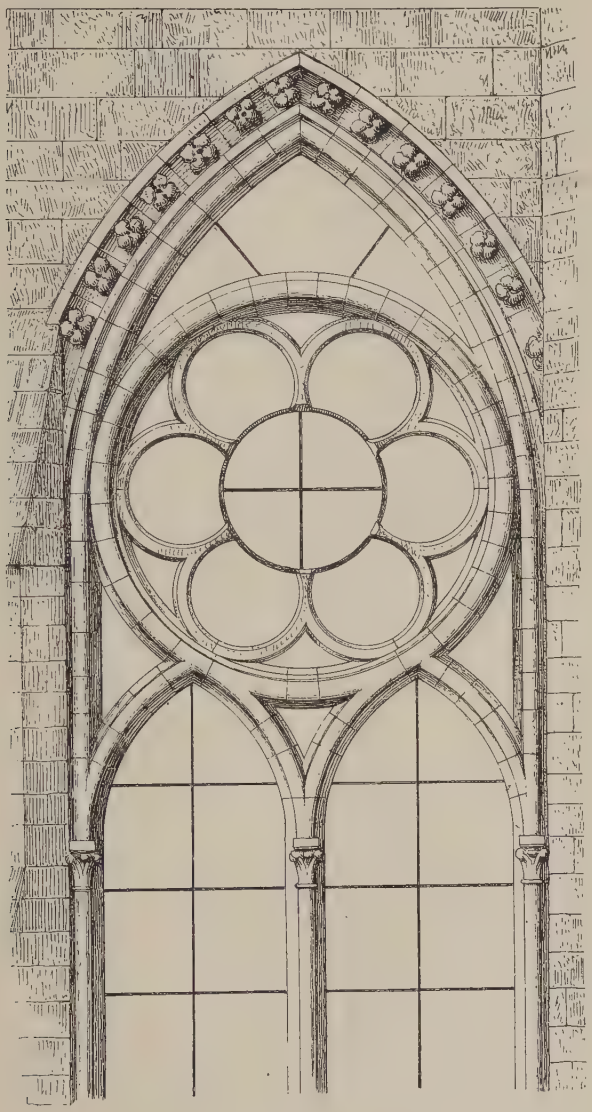

FIG. 48.

construction ; but that of Paris is composed of fewer, and consequently larger pieces,—a method which rendered it

possible to make the bars very much more slender, and yet to secure equal strength. One of these new clerestory windows is seen in the left bay in Fig. 46. To accomplish the change the pretty circular opening, seen in the unaltered bay to the right, had to be sacrificed; a string-course was inserted far below the springing of the vaults, down to which level the splays of the new openings were brought. The tracery is more simple than that of Reims, the sexfoil being omitted from the circle, and it is also more slender. The form of the window head is changed from that of the original window into a more acutely pointed arch, which is nearly concentric with the remodelled vault above it.[1] Both it and the vault disagree strikingly with the old longitudinal rib which remains undisturbed, affording an instance of the frankness with which traces of what previously existed are allowed to remain in mediæval work when occasion gives rise to changes or corrections. Such traces add much to the historic value of these monuments, and not unpleasantly correspond with what we frequently find in the works of old designers in the sister arts of painting and engraving, where corrections are made with little attempt at concealment, as in the case of the well-known horse's hoof in Dürer's engraving of the Knight and Death.[2]

In the case of these clerestory windows of Paris it may, I think, be questioned whether they were improvements to the building. There was a severe and simple beauty in the older design, with its unique rose in the upper triforium, that is not wholly compensated for by the tall new windows which do not fit very well into the old work. The windows, moreover, though their tracery, in its mode of construction and in its lightness, is an advance upon the tracery of Reims, are, in their relation to the building, not so distinctly Gothic; for the windows of Reims completely fill the spaces between the piers of the building, while those of Paris still leave a large wall space remaining.

Very soon after it had been recognised in the apse of Reims that the openings might safely be made equal to the

[1] Many more particulars concerning the changes that were made in this building at this time are given by Viollet-le-Duc, *s.v. Construction*, and elsewhere; but those noticed above are, for the most part, not referred to by him.

[2] Motives of economy doubtless had much to do with the preservation of old work when changes were made in these buildings.

entire spaces between the piers, the now growing art of painting on glass led to the universal practice of making them so. Vast and resplendent colour-designs in glass, softening the light and affording a grateful warmth of effect, thus became the leading mode of enrichment of the interior by colour.

The tracery by which these great openings were divided was constructively necessary to support the expanses of enclosing glass against the force of winds; and the greater the area of the opening the larger was the number of tracery bars required to afford this support. Hence the extensively subdivided tracery of the vast apertures of fully developed Gothic buildings—like the Cathedral of Amiens—which, by its very nature, afforded a beautiful mode of enrichment and adornment of the windows.

The enlargement of the clerestory opening, to the extent of doing away with the wall entirely beneath the vault rib, resulted in an important simplification of the construction, of which we have, I think, the first instance in the clerestory of the nave of Amiens, where the longitudinal rib and the archivolt of the opening, as has been pointed out by M. Viollet-le-Duc, become one and the same member, while the longitudinal rib shaft becomes a member of the window jamb.

As before noticed, the clerestory and triforium in the nave of Amiens are united into one grand composition by the descent of the longitudinal rib shafts and the shaft of the central mullion to the level of the triforium string. These three members divide each bay of the triforium into two bays, in each of which is a pointed arch encompassing a sub-order of three pointed arched openings. The same arrangement is repeated, with minor variations, in the nave of St. Denis. In this case each of the three mullions of the clerestory window descends through the triforium, dividing it into four bays—an arrangement which gives to the triforium a somewhat unpleasant effect by making its main divisions to consist of a series of upright rectangles.

The triforium passage in France, when it is not a vaulted gallery, is always enclosed by a thin screen of masonry, hiding the open space between the aisle vaults and the timber roof over them. Nothing but masonry is, therefore, to be seen in

the interior of a French church, in consequence of which it has a strikingly consistent and monumental effect that is in some degree lost when the timbers of the triforium are exposed to view.

In the aisles, as in the clerestory and triforium, the openings, in the fully developed style, reach from pier to pier—a thin wall for enclosure, carried up to the window sills, being all the wall that is visible from the interior.

Thus were the walls of the former style practically suppressed, their place being taken by screens of painted glass, sustained by a slender framework of stone wrought into beautiful geometrical designs.

We have now examined the leading structural developments of French Gothic buildings as far as concerns their longitudinal bays, and it only remains to examine those of the eastern and western terminations, and also of transept ends, and of towers and spires.

The traditional semicircular apse, greatly enlarged and varied in the developed style by a polygonal form, is the characteristic eastern termination of French churches, though in exceptional cases this form gives place to the square, as at Laon Cathedral, where the original round apse was replaced at an early period by a square end.

A more beautiful termination than the round or polygonal apse, as designed by the mediæval architects of France, it is hard to conceive. No part of the Gothic edifice does more honour to these builders. The low Romanesque apse—vaulted as in older times with a plain semi-dome—presented no constructive difficulties, and produced no very imposing effect. But the soaring French *chevet*, with its many-celled vault, its divided stories, and its encircling aisles, taxed the utmost inventive and executive skill, and deserves universal admiration.

It is now hardly possible to trace the earliest development of the Gothic *chevet*. That of St. Denis was destroyed in the thirteenth century, and certainly not one of an earlier date exists complete. The apse of Senlis has lost its original vault, and is therefore serviceable as an example only so far up as the clerestory string. But the apse of the Cathedral of Noyon remains complete and in excellent condition. Like all early Gothic apses it retains the semicircular plan, which had

been constant in Romanesque design. Its high vault (plan, Fig. 49)[1] is in five cells, whose ribs intersect upon the first transverse rib of the choir, and are abutted by the diagonal ribs of the first rectangular compartment. In order to effect the abutment this compartment is made tripartite—that is, its diagonal ribs, instead of each consisting of two branches abutting in the centre of the compartment, and thus, in plan,

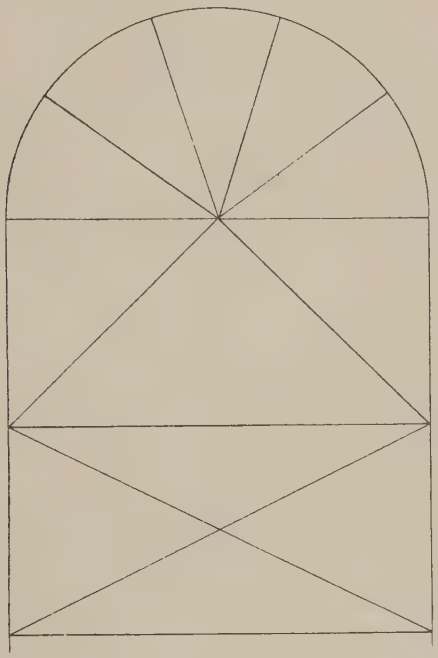

FIG. 49.

following the diagonals of the rectangle, consist of but one branch which runs to the centre of the eastern transverse rib. These branches are abutted, however, by the first two ribs respectively of the apse compartment; and hence the two compartments together may be considered as forming one octopartite vault.

In elevation each bay of the apse is like a single bay of the straight part of the edifice, except that it is narrower and is on a curved plan; its vault cells also are substantially like the lateral cells of the rectangular compartments, except

[1] This figure is copied from Vitet's Monograph on the Cathedral of Noyon.

that those portions which are comprised between the ribs and the piers up as high as the springing of the narrow arches which span the ends of the cells, become merely vertical walls instead of having the conoidal form. In fact, the vaulting system and the forms of the lower portions of the vaults are in the apse very much as they are in the intermediate system in sexpartite vaulting.

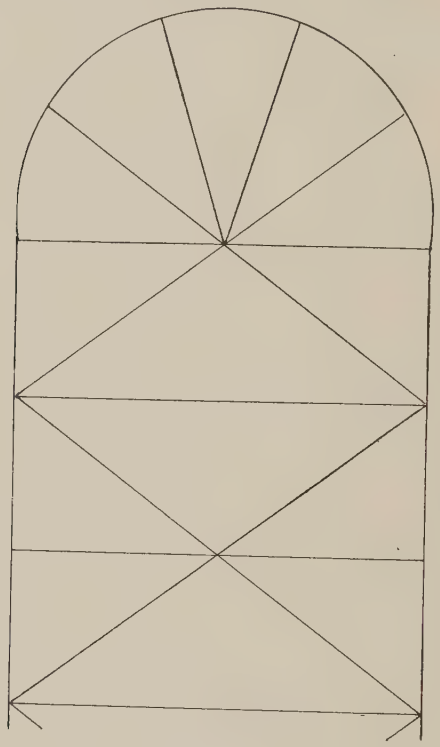

FIG. 50.

The apse of the Cathedral of Paris is the next one of importance, and it is among the most admirable and majestic apses in France. Its high vault is, like that of Noyon, in five cells, and its ribs intersect, in the same manner, on the transverse rib of the adjoining rectangular compartment, being abutted as before by the ribs of this compartment (Fig. 50).[1] But beyond this there is a differ-

[1] The arc of the plan of the apse is in this case more than half a circle, its centre being somewhat eastward of the point of intersection of the ribs. Two of these ribs are consequently longer than the others.

ence, which is worthy of notice, between these two constructions. In the choir of Noyon, the vaults being quadripartite, the ribs of the compartment adjoining the apse would not naturally have furnished an abutment for those of the apse; for the diagonals of a quadripartite vault intersect in the middle of the compartment. Therefore in order to secure abutment this compartment was made tripartite as we have seen, uniformity being sacrificed, in a truly Gothic spirit, to constructive exigency. But in Paris, and also at Bourges, the vaults of the choir being sexpartite, the plan is so arranged that a half of a double compartment shall adjoin the apse. The transverse rib upon which the apse ribs intersect thus corresponds to the intermediate rib of a sexpartite compartment, and hence this rectangular compartment is naturally tripartite, and forms a natural abutment to the compartment of the apse. For a sexpartite system no better arrangement could be devised.

Even for quadripartite vaulting the arrangement of Noyon, though logical and effectual, is not the best. The marked disparity in form and in the size of the respective cells, which it occasions between the easternmost compartment and the other compartments of the choir, was a defect which the builders were not slow to observe and to correct.

A better arrangement was discovered at Chartres (Fig. 51), and was afterwards more perfectly carried out at Amiens. At Chartres the centre of the arc of the apse is, as at Paris, set eastward of the line spanned by the easternmost transverse rib; but instead of lengthening the apse ribs (as they are lengthened at Paris) to meet this transverse rib, they are shortened so as to meet a little eastward of the true centre, while additional ribs, *a*, are introduced, springing from the easternmost piers of the choir, whence they also converge upon the same point. These additional ribs thus furnish effectual abutment to the others, and the vault of the apse is rendered independent of the vaults of the choir. The choir vaults are now uniformly quadripartite; the awkward expedient adopted at Noyon being no longer necessary. At Chartres, too, the semicircular or segmental form is replaced by that of a polygon. The introduction of the two additional ribs in the vault gives eight instead of five cells to the apse, and the plan thus becomes a polygon of seven sides ex-

clusive of the long side marked by the transverse rib which separates the apse from the choir.

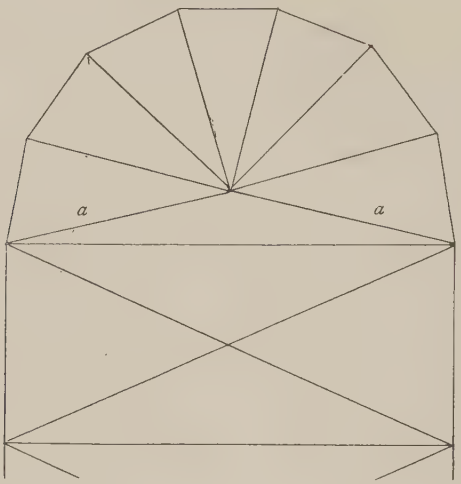

FIG. 51.

The apse of Amiens (Fig. 52)[1] is perhaps the grandest in which this polygonal plan is carried out. And its plan, though perfectly simple, is most ingenious and perfect. The centre of the arc is in this case set to the eastward still farther than at Chartres, and upon this centre the ribs are made to converge. These ribs are now consequently all of the same length; and the whole effect is harmonious and admirable in the highest degree.

Among the finest earlier Gothic apses is that of St. Remi of Reims, which was constructed toward the end of the twelfth century. Below the clerestory it closely resembles the apse of Paris; its lower piers, its vaulting system, and the forms of ground-story and triforium arcades (like Paris it has a vaulted triforium gallery) being almost identical in design. It is, however, in advance of Paris as regards attenuation of supports and general lightness of construction. Like the Cathedral of Noyon it has a second triforium; and it is noticeable that this second triforium is united with the clerestory by shafts which embrace both stories, as at Amiens and St. Denis. The openings of the clerestory and the outer openings of the vaulted gallery are three in each

[1] Fig. 52 is copied from Viollet-le-Duc.

bay ; they are closely grouped, and entirely fill the spaces between the piers. This is not a common form of opening in France, and it is not strictly in accordance with the Gothic system ; for although the openings quite fill the spaces between the piers (the dividing members having scarcely more volume than mullions), they do not quite fill the space beneath the vault rib, since their solid tympanums necessarily occupy a good deal of it.

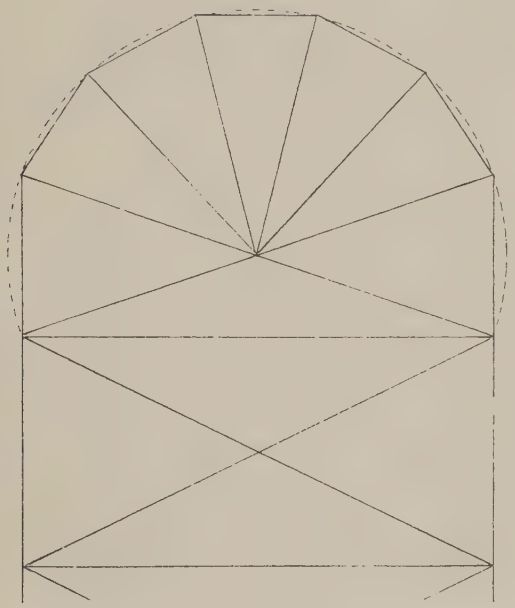

FIG. 52.

There is hardly a construction in France of more interest than this portion of St. Remi as showing how the Gothic style is but an evolution from the Romanesque. Externally the plain round apse, the projecting apsidal chapels, and the general quietness of effect are strikingly reminiscent of the old monastic style ; while yet the bold flying buttresses and the large openings, nearly suppressing the walls, bespeak a structure on strictly Gothic principles. This apse is another striking illustration, too, of the fact that the development of Gothic construction was from within outward, the internal arrangements necessitating those of the exterior, and the exterior assuming the Gothic expression first, as here shown,

in the large constructive members, and finally in every detail. Figs. 53 and 54, portions of the interior and exterior, respectively, of this apse will illustrate these remarks.

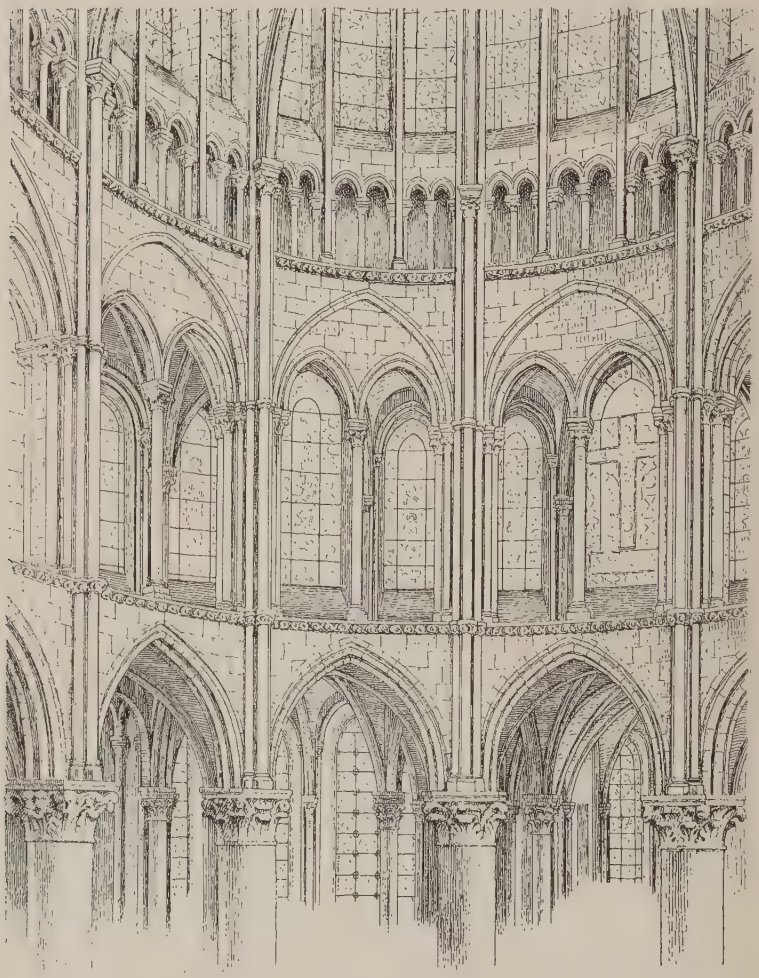

FIG. 53.

The vaulting of the apsidal aisles presented difficulties which had been very embarrassing to the constructors previous to the employment of the pointed arch and the adoption of a system of supporting ribs. These difficulties grew out of the peculiar forms of the spaces to be vaulted—

forms which presented great disparity between the spans of the pier archivolts and those of the wall arches. The intersection of a cone (which was necessarily the form of the transverse vault) with a barrel vault on a segmental plan

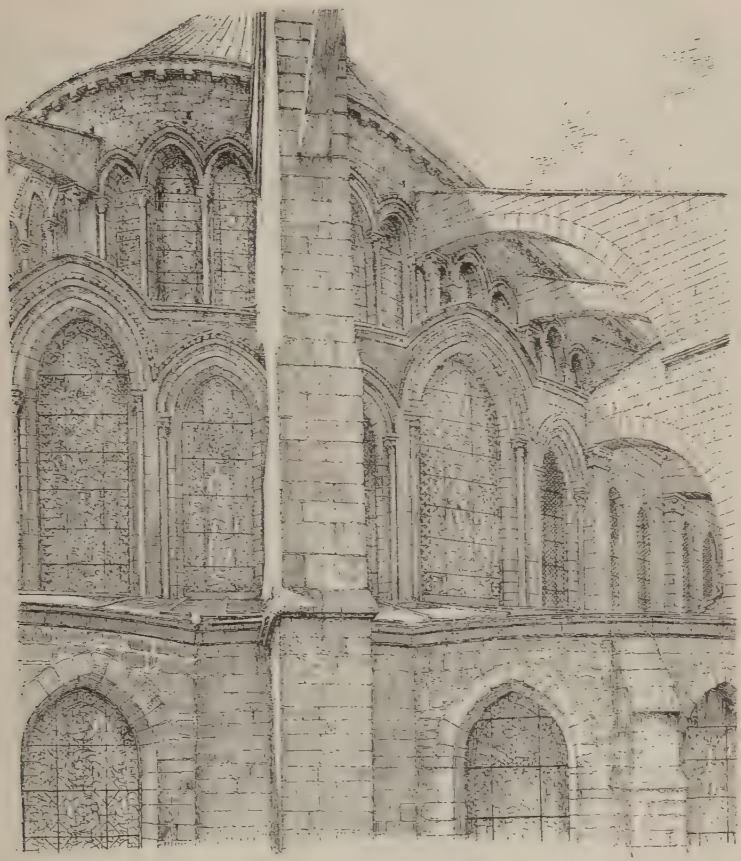

FIG. 54.

gave groins whose plans were wavy lines, and which were so salient in parts as to possess little strength. Many unsightly results were produced in the efforts of the Romanesque builders to construct such vaults at once securely and conveniently.[1] To illustrate these experiments would require more space than it is worth while to give to them in this connection. It is enough here to say that the

[1] See Viollet-le-Duc, *s.v. Voute*, p. 489, *et seq.*

difficulties which they attempted unsuccessfully to solve with the round arch were wholly removed, as we have seen in St. Denis, by the use of the pointed arch and of groin ribs.

In addition to what has already been shown concerning the vaults of St. Denis one further illustration of the flexibility of the Gothic system, in the construction of such vaults, is afforded by the Cathedral of Paris.

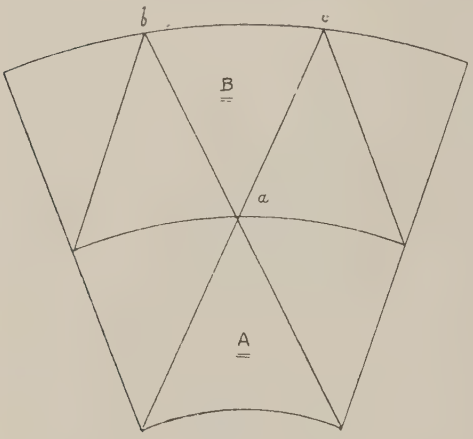

FIG. 55.

The form of each vaulting compartment of an apsidal aisle is, of course, trapezoidal; and where two such compartments adjoin each other concentrically, as they do in the double apsidal aisles of Paris (Fig. 55), there results an awkward difference in the lengths of their sides. The simple arrangement employed at St. Denis and elsewhere might still, of course, be employed; but the disparity in the spans of the arches and in the magnitudes of the cells would, on this arrangement, be very great. To obviate this the architect of the apse of Paris adopted another method whereby all the longitudinal arches are rendered of nearly equal span. This result is obtained by dividing the longest side of the compartment A into two parts by the insertion of a pier, *a*; and the longest side of the compartment B into three parts by the insertion of two piers, *b* and *c*. There are no intersections of the arches, and consequently no common keys in these compartments, each line in the plan representing a complete arch.[1]

In regard to chapels the Gothic apse in France differs considerably in different buildings according as the ecclesiastical, or the communal, influences predominated in the foundation. In the one case chapels are general and

[1] For full particulars regarding the mode, at once simple and ingenious, of filling in these triangular spaces, see Viollet-le-Duc, *s.v. Voute*, p. 512.

pronounced, while in the other they are either wholly wanting or are but slightly developed. The Cathedrals of Senlis, Noyon, and Chartres are instances of the first, and those of Paris and Bourges of the second class. In the

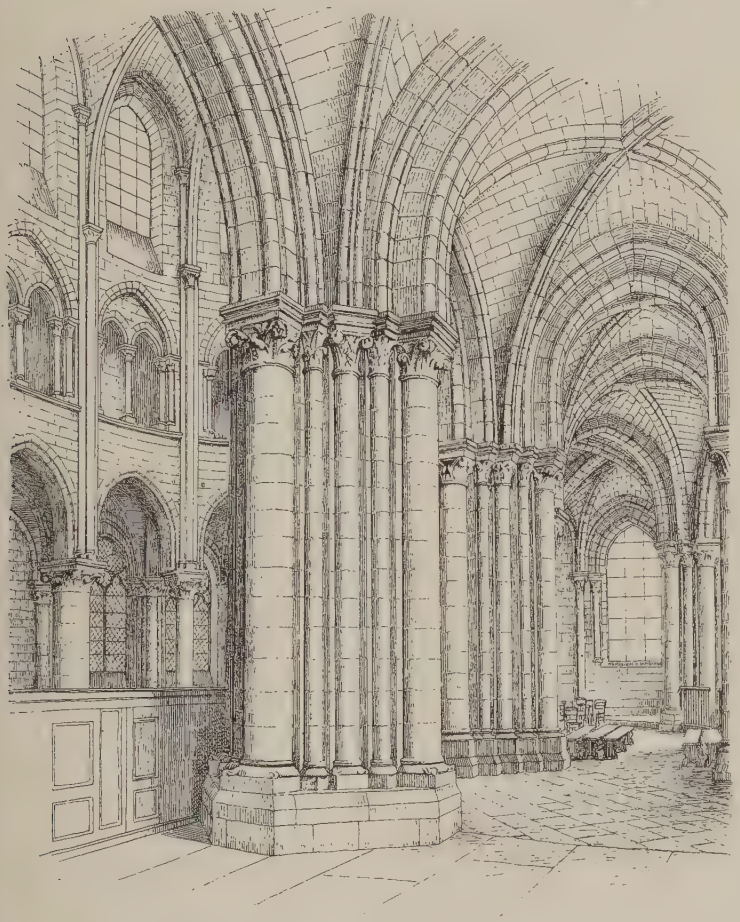

FIG. 56.

more developed Gothic, as at Amiens and Beauvais, apsidal chapels become general, and add great richness to both the interior and exterior effects of the building.

The combination of apse, apsidal aisle, and apsidal chapels called for a wonderful degree of structural ingenuity, and led to some of the most charming interior effects. And

among such combinations hardly any are more admirable than those which were constructed towards the close of the twelfth century, of which St. Leu d'Esserent (Fig. 56) affords a typical example.

The plans of nearly all large French churches include transepts. Bourges, among cathedrals of the first magnitude, is exceptional in having none. In some large buildings, as in Paris, the transept is of slight projection. In others, as at Noyon and Laon, it is more extended. In some cases it is without aisles, as at Paris and Noyon. In others it has aisles, as at Chartres, Amiens, and Reims. More rarely, as at Sens, there is an eastern, but no western aisle. And in some transepts, as in those of Laon and Sens, there are chapels opening out of the eastern aisle. The transept usually terminates in a square end ; but at Noyon both ends are apsidal, while at Soissons one end is round and the other is square. The round transept end is formed by a continuation of the side walls and buttresses, with their horizontal divisions. But in the usual square termination an appropriate façade is given, which is often of a very imposing character. This façade corresponds, in its main divisions, with the interior, being in three stories, exclusive of the gable. Where there are aisles the vertical divisions are marked by buttresses which divide the façade into three bays. The flying buttresses appear over the roofs of the aisles, and the whole structure is largely expressive of the form of the interior. On the ground-story of the central compartment there is a great portal, while the aisle ends usually have windows instead of doors. At the triforium level is a range of arched openings, while in the division above is usually a vast wheel window surmounted by a gable. The façade of the south transept of Amiens answers to this description completely. But every great church exhibits more or less conspicuous variations from every other in this, as in its other main parts. In some cases the transept portals are so vast and so richly adorned as to almost equal, as at Paris, and sometimes even to surpass, as at Chartres, those of the main façade. The transepts of Chartres are provided with vast and unique porches which, with their respective portals, are among the grandest architectural productions of the Middle Ages.

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Of the majestic aspect of the great west end of a French Gothic cathedral too much in praise can hardly be said, notwithstanding that in it the constructive principles which distinguish the style, and which most excite our wonder and admiration, are least manifest. These façades are sometimes criticised on the ground that they disguise the true character of the structure behind them. It is, perhaps, true that an entirely satisfactory design for a western façade was hardly ever realised in a large Gothic church, though at Paris, Amiens, and Reims we have west fronts of magnificent, and for the most part appropriate, character.

It may be said in behalf of these designs that it is not an imperative principle that a façade should wholly express the structure of the building of which it forms the front. The façade rarely can do this in any architecture. But it may be admitted as a principle that unnecessary concealment of internal arrangements is an architectural offence; and hence those horizontal arcades which connect the towers in the grandest of Gothic fronts, hiding the forms of the gables behind them, may seem at first not easily defensible. It should be remembered, however, that the gable over a Gothic nave is not the true roof, and that the form of the vault is not wholly incongruous with the horizontal arcade. To the eye at least this arcade harmonises well with the total composition—a composition which is determined largely by the great lateral towers; and to the eye, if not in reality, this arcade performs the function of steadying the towers. As for the towers themselves, it would be hard to conceive any more appropriate termination for the aisles. And yet from the front view they quite mask the whole of that wonderful mechanism of flying buttresses which reveals so much of the distinctive character of Gothic art. But it is always easy to get a view which commands the whole structural system, and in such a view we are impressed with the majesty and appropriateness of the mighty towered western front. In fact, criticise it as we may, it is hard to see what better could be done. Without the towers the front would be wanting in that special emphasis and dignity which are appropriate to a great communal edifice. In the smaller and less important churches a treatment like that of transept ends was some-

times adopted. The small Church of Vaux-sous-Laon (Fig. 57) has a façade of this form. The whole structural character of the building is perhaps as fully expressed in this façade[1] as it could be; and where there is, as in this case, a transept and a central tower, the whole together makes a charming and impressive composition.

The practice of terminating the western extremities of the aisles of large churches by towers was established in the

FIG. 57.

Romanesque period; and an instance of the simple character of the resulting façade is afforded by the Abbaye-aux-Hommes (Fig. 58). These towers are flanked by plain pilaster buttresses of two orders, which rise without set-offs to nearly the level where the towers disengage themselves from the central compartment of the façade. At this level they are banded by a string-course which continues across the entire front, and above it they are carried up three stories higher.[2] The façade is divided into three stories

[1] I have seen this church from a distance only; and I am not sure whether this façade is at the eastern or the western end.

[2] The spires which now crown these towers do not, of course, belong to the

marked by plain string-courses. In the ground-story three round arched portals of modest dimensions, and each of three orders, open into the nave and aisles respectively; while in the central compartment are three round arched

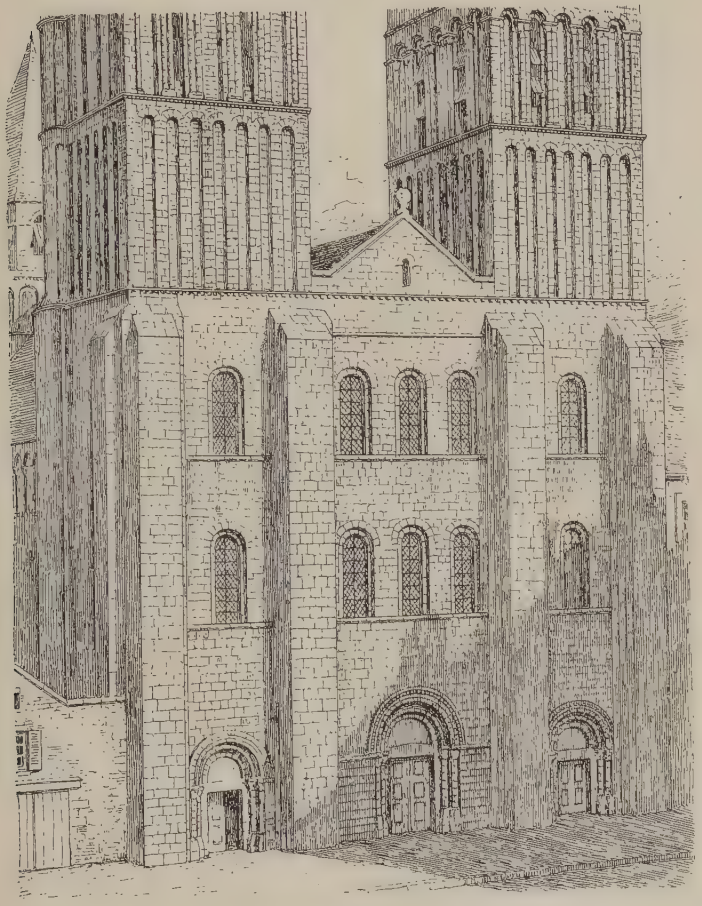

FIG. 58.

openings in each of the upper stories, and in each tower compartment is one such opening in each of the same stories. A low gable over the central compartment, with a single small arched opening, completes a design which is simple even to baldness.

original construction. The original roofs were replaced by them in the thirteenth century.

It will be instructive to follow some of the changes which were wrought by the Gothic builders upon this simple scheme, and to see what different character they finally give it, retaining to the last these leading component elements. The development was less rapid here than in the other parts of the building; and, indeed, it was not till near the end of the twelfth century that the distinctly Gothic impress began to predominate over the Romanesque characteristics. Still the germs of the new style appear in the façade of St. Denis —in the larger dimensions of its recessed portals, in the presence of the pointed arch in some of its openings, in the large wheel window of the upper compartment of the central bay, and in the general character of its sculptured enrichments.

A more distinct approach to the Gothic type is shown in the façade of the Cathedral of Senlis (Fig. 59), which dates from the end of the twelfth century. Although in main features it is almost the same as that of the Abbaye-aux-Hommes, it nevertheless shows a new spirit—a spirit that bespeaks the vigorous activity of the Gothic genius. Here are the same plain square-edged tower buttresses dividing the front vertically into three bays. The central bay is divided horizontally into three stories by simply moulded string-courses, the upper one of which breaks around both towers and buttresses. The whole width of the central bay in the ground-story is occupied by a recessed portal in five orders with pointed arches, which is probably the earliest of the unparalleled series of portals of distinctly Gothic type which so distinguish the architecture of France in the twelfth and thirteenth centuries. Over this portal is a great pointed arched opening of four orders, which must originally have been divided by one or more shafts and a pierced tympanum, but whose present dividing members are incongruous interpolations of a later time. In the third story is a small circular opening of three orders—also filled with tracery of a later date,—and on either side of it is a pointed arched niche[1] of two orders, enshrining a statue. There is a smaller pointed doorway of three orders in the ground-story of each tower bay, the stilted and pierced tympanums of which are of curious design. Above

[1] The niche is not a Gothic feature, but as yet the Gothic façade was but beginning to develop.

the doorway in the south tower is a small pointed arched aperture of two orders, while the corresponding opening in the north tower is smaller and round arched. Above each of these openings there is an obtusely pointed blind arcade

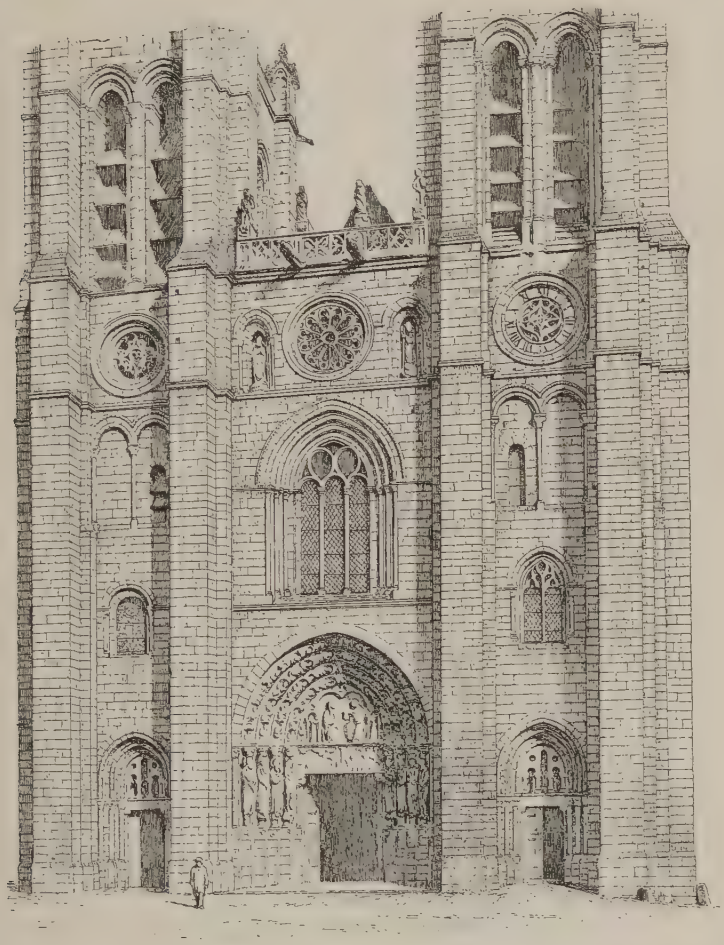

FIG. 59.

of two arches on slender shafts, and over these again are small circular openings like that on the same level in the central bay. The tower buttresses here, unlike those of the Abbaye-aux-Hommes, continue up to the cornice of the first story above the roof of the nave. In this story the space

between the buttresses is occupied by coupled pointed arched openings of two orders. The north tower was not completed above this level; but that on the south is surmounted by a spire of early thirteenth century construction, and of almost unrivalled beauty.

Unlike the main body of the building, the Gothic façade is largely the result of a mere modification and enrichment of Romanesque forms rather than a growth from new constructive principles. The façade with its towers is, for the most part, simply a storied edifice, which may, indeed, as at Reims, by the width of its openings, the slenderness of their dividing members, and the general upward impulse of its lines, attain a high degree of Gothic expression, but it is not a structure into which any dynamic principle largely enters. This being so, the criticism which early Gothic façades, like the Cathedral of Paris, sometimes receive, as wanting in Gothic character, is not well founded. The façade of Paris (Fig. 60) is one of the most Gothic, as it is also one of the grandest of structures of this kind. It is certainly the most remarkable façade that had been erected up to its time; and for dignity, sobriety, and extreme beauty of details it has hardly been surpassed. The general scheme of design is still the same as in the Abbaye-aux-Hommes; but such is the treatment of its elements that the Gothic spirit is manifest in every part. Its large divisions are admirably proportioned and beautifully subdivided. The Romanesque characteristics have completely disappeared from the apertures, arcades, and even from the moulding profiles, while in Senlis the Romanesque profiles are largely retained. Three majestic portals on the ground-story, above them a great central rose flanked on each side by twin pointed apertures and a circle embraced by an encompassing arch, a magnificent shafted arcade, sheltering twenty-eight sculptured statues, dividing these stories, an elegant, though gigantic, open arcade over all, and the two towers, each pierced by coupled pointed openings, rising one story higher, make up a most impressive architectural composition.

The magnificence, without extravagance, of the still richer façade of Amiens (Fig. 61) is, in some respects, beyond all praise. In addition to the leading features of

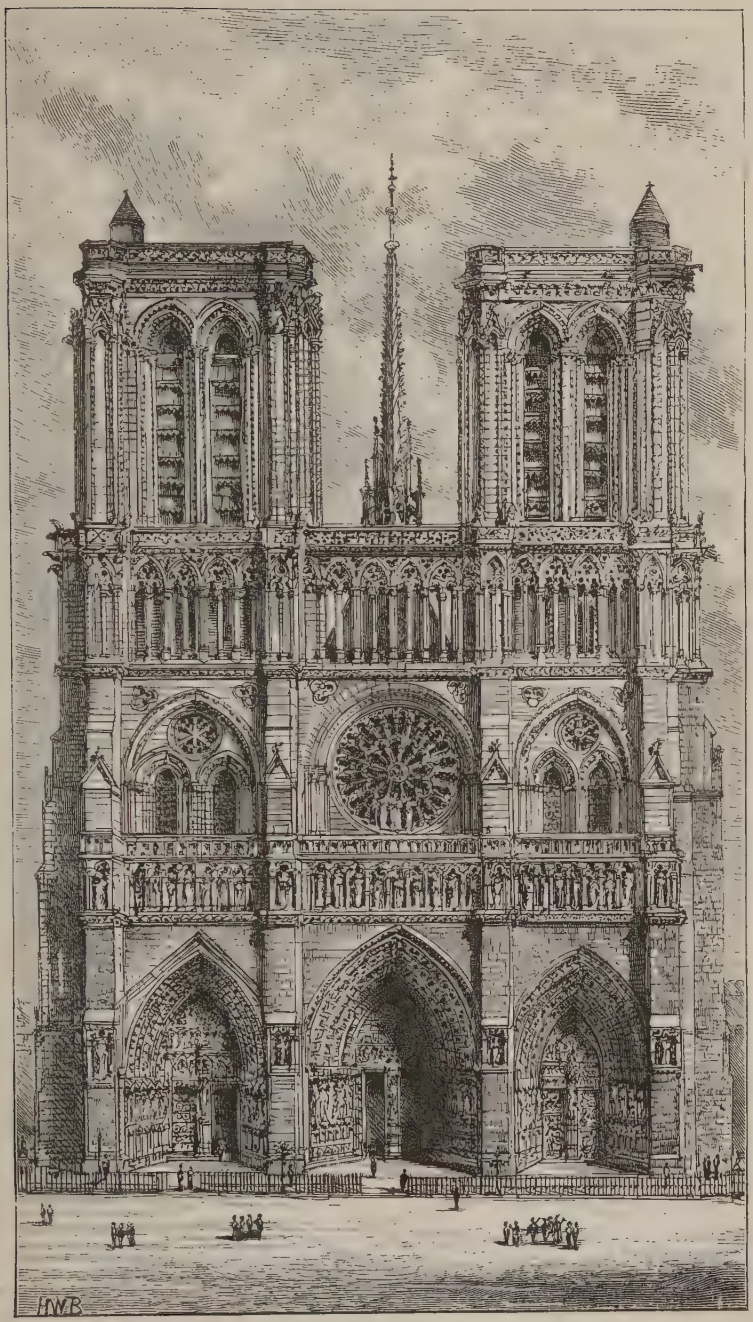

FIG. 60.

Paris it has gables over its three vast portals; these gables are advanced so as to be even with the outer faces of the buttresses—an arrangement which adds greatly to the depth of the archivolts, and converts the lower portions of the buttresses into doorway jambs. Beneath the arcade of sculptured statues is an elegant open arcaded gallery; while the great open arcade of the top story of Paris gives place, here at Amiens, to two superposed lesser arcades connecting the towers above the cornice. It is sadly to be regretted that the great rose has lost its original tracery—the existing flamboyant tracery wholly disagreeing with the spirit of the rest of the design. In this façade wall-spaces are everywhere in effect suppressed, and the Gothic character is everywhere strongly emphasised. Indeed, this façade, like the interior which it encloses, marks the culmination of Gothic art in its entirely normal condition.

It is hard to speak critically of so marvellous a structure as the façade of the Cathedral of Reims. The period of its foundation (1260) was a time when the vitality and spontaneity of the Gothic movement were, in great measure, spent; and the signs of waning life are not wanting in this monument. It has qualities, however, which almost entitle it to a first place among Gothic façades. In the magnitude of its openings, the attenuation of their dividing shafts, and the general predominance of vertical members, it is more Gothic in expression than any other façade of the thirteenth century in France, and yet its defects are both serious and prominent. Among the most marked of these is the projection of the great portal jambs, with their archivolts, beyond the faces of the buttresses, and the continuation of the splays to the outer faces of the jambs, so that those of the adjoining portals almost meet in a sharp edge. The buttress is thus quite suppressed as a feature in the ground-story, where it is especially important that it should be pronounced. Another unhappy arrangement is that of the pointed arch encompassing the great rose, which gives the rose the effect of an awkwardly managed afterthought. The soaring aspect, which is very marked in this design, is secured not only by great height in proportion to width, and general prominence of upright lines, but also by the artifice of breaking the level courses by gables rising through them, and by the

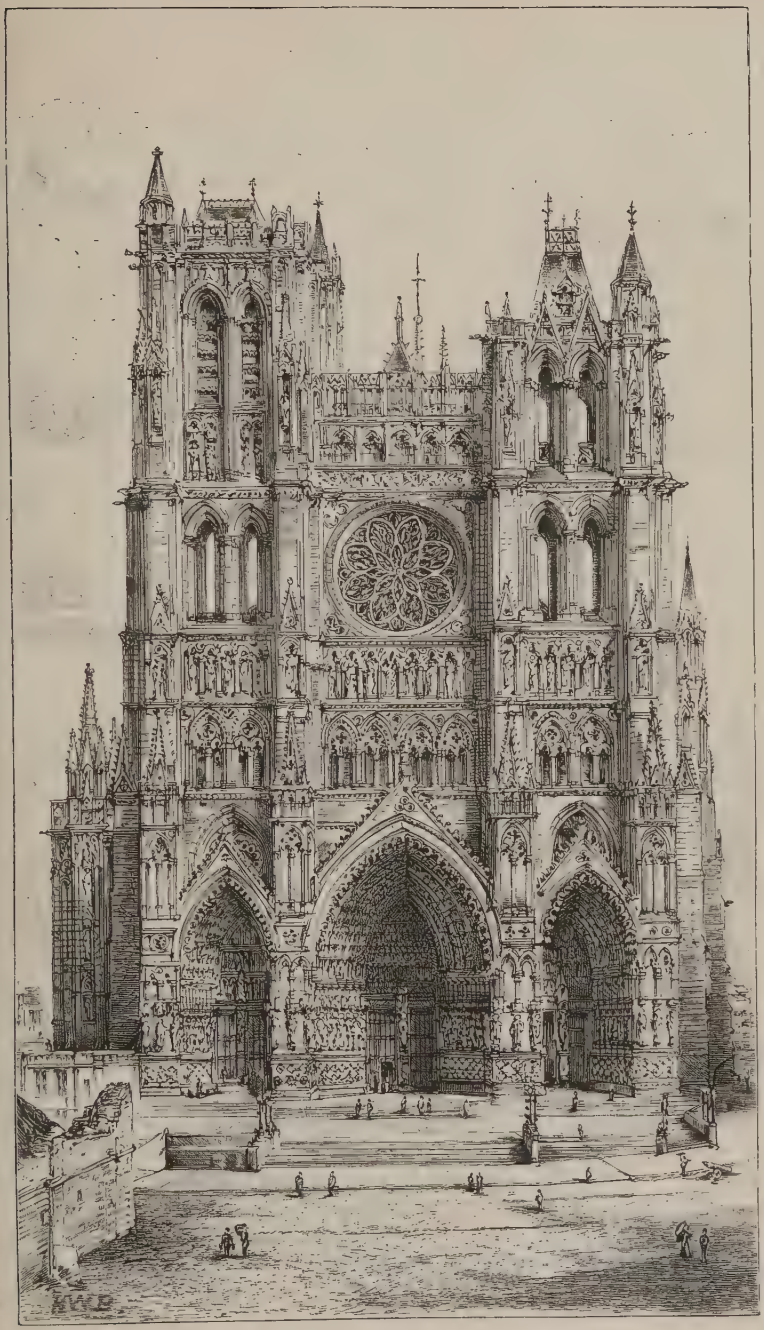

FIG. 61.

addition of an acute gable above the top arcade between the towers.[1]

The west fronts of Senlis, Paris, Amiens, and Reims sufficiently illustrate the development and the characteristics of the French-Gothic façade. Its typical form, as exhibited in the Cathedral of Amiens, is truly a marvel of architectural design. With the given elements and conditions it is hard to see how a more consistent and beautiful product could have been created. The arch, the shaft, the buttress, and the dividing string are employed in it not only with mechanical propriety, but with the most subtle artistic feeling. Indeed, by the simple adjustment of proportions the Gothic builders, in these structures, wrought wonders.

Nor ought we to convey the impression that structural developments were altogether wanting in this part of the building, though it is true that here such developments were fewer, and were hardly ever apparent externally.

M. Viollet-le-Duc has shown,[2] for instance, that in vast buttresses like those of the façade of Paris the tendency to settlement of the mortar beds is greater at the inner part, which is the more heavily weighted, than at the outer face. This inequality of settlement would tend to cause rupture were the buttress constructed of mere horizontal beds of masonry all of the same material. But if the weight falling on the lower portions of the inner part were diminished by a system of props carried up obliquely at different levels from the outer face, the tendency to rupture would be neutralised. Accordingly it has been found that the buttresses of the façade of Paris have an internal structure consisting of a superposed series of inclined masses of harder masonry which conduct a great part of the weight from the inner portion to the outer face of the buttress. To secure the outer face against yielding to the outward push of these props the bonding of the masonry is reinforced, at the levels where they find foothold, by cramps of iron. The buttress thus becomes really an organic structure, exhibiting something of the dynamic principle which reigns throughout the rest of the building.

[1] In later forms of Gothic this artifice is carried to excess, as at Rouen and Cologne.

[2] *S.v. Construction*, p. 158, *et seq.*

Of external features none is more striking, and after the flying buttress, none shows more of the Gothic spirit, than the stone spire with which, in the design, if not in the executed work, the tower was crowned. It is a feature, too, which, more emphatically perhaps than any other, marks the communal spirit and influence. The spire formed the governing feature in any general view of the mediæval town, and was a sign of municipal power and prosperity. It was natural, therefore, that the spire should call forth the special enthusiasm and effort of the lay builders.

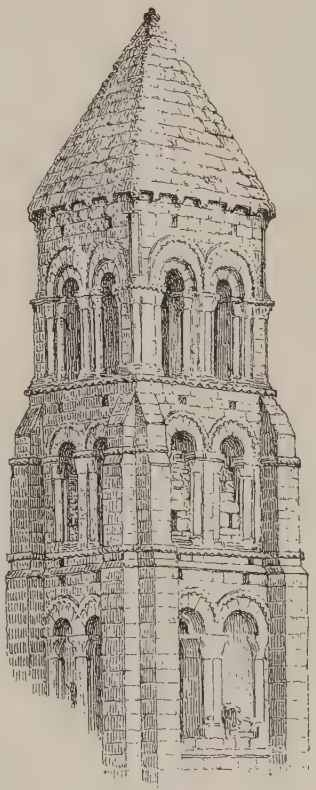

FIG. 62.

Before the twelfth century nothing like a true spire had been built. The French towers of the eleventh century, when roofed with stone, had these roofs constructed in the form of a low square pyramid, like those which still exist over the towers that flank the apse of Morienval (Fig. 62), and date from about the middle of the eleventh century.

In Normandy a more pointed pyramid frequently took the place of the low one, as at Basly and Rosel (Calvados), but it was still on a square base.

In the Ile-de-France, however, the true octagon spire, surmounting the square tower, with pinnacles occupying the angles of the square, occurs early in the twelfth century, as in the small churches of St. Vaast de Longmont, Chamant near Senlis, and others. Of these Chamant (Fig. 63) is especially interesting as exhibiting features which were afterwards magnificently amplified in the unique spire of the Cathedral of Senlis. These features are the acutely

gabled dormers,[1] with pierced tympanums, one on each of the four faces of the octagon that are even with the tower walls, and, above these dormers, the openings pierced through each face of the octagon. There are probably few spires of earlier date; and from such simple types the progress was surprisingly rapid—each new construction showing some innovation, and generally some improvement, upon what had been accomplished before. There were difficulties to be overcome of no slight magnitude. To manage the transition from the square plan of the substructure to the octagonal plan of the spire, so as to secure both stability and beauty, was by no means an easy matter when there were no precedents to guide the constructor.

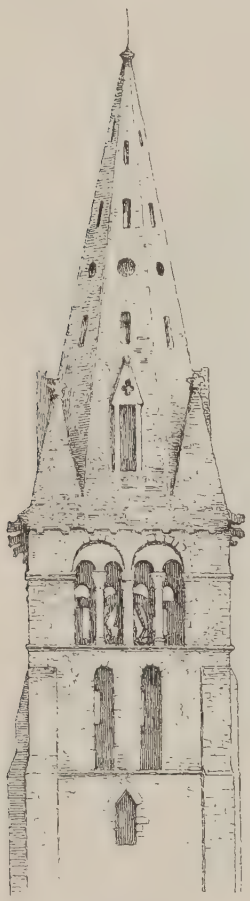

FIG. 63.

If we regard these early spires as experiments, which indeed they were, in a new form of structure, we may well wonder at their cleverness; but if we judge them by the subsequent achievements in the building of spires, we appreciate the points in which they fail.

The adjustment of the octagon to the square, as exhibited in this spire of Chamant, was but partially successful. The transition is too abrupt—the upper story of the tower is not happily connected with its substructure and superstructure by any continuity of members; but a great improvement was very soon made, and the typical Gothic spire was brought into existence almost at one stride, in the Cathedral of Chartres.

The south tower and spire of this cathedral (Fig. 64)

[1] Gabled dormers, though of a more primitive form, occur in the Norman pyramidal roof of St. Contest (Calvados). If they occur elsewhere in Norman design they are certainly rare.

were constructed between 1140 and 1160. Here the octagonal pyramid, instead of rising directly from the square tower, is raised upon an octagonal drum, and four pinnacles built up vertically against the diagonal walls of this drum are based upon the angle buttresses of the tower, continuing their lines and crowned by pyramidal summits at the level where the great pyramid begins. Pointed arched openings in the four cardinal faces of the vertical octagon are surmounted by acute gables which rise far above the angle pyramids and abut the inclined walls of the spire. Coursed half-round mouldings strengthen and adorn the spire angles,[1] and a similar moulding is wrought upon the middle of each face. The transition from the square to the octagon is thus accomplished in the happiest manner; and the continuity of lines, all of which have a perfectly structural function and expression, is complete from the ground to the apex.

FIG. 64.

The spire of the Cathedral of Senlis (Fig. 65), erected early in the thirteenth century, marks the culmination of pure Gothic design in this feature. In constructive principle it presents all the excellences of the spire of Chartres; while for beauty of proportions, grace of outline, and refinement of details, it is hardly equalled by any other spire of

[1] Similar mouldings had been employed in some Norman constructions, as in the Tower of St. Loup (Calvados), figured in M. Ruprich-Robert's *Architecture Normande*.

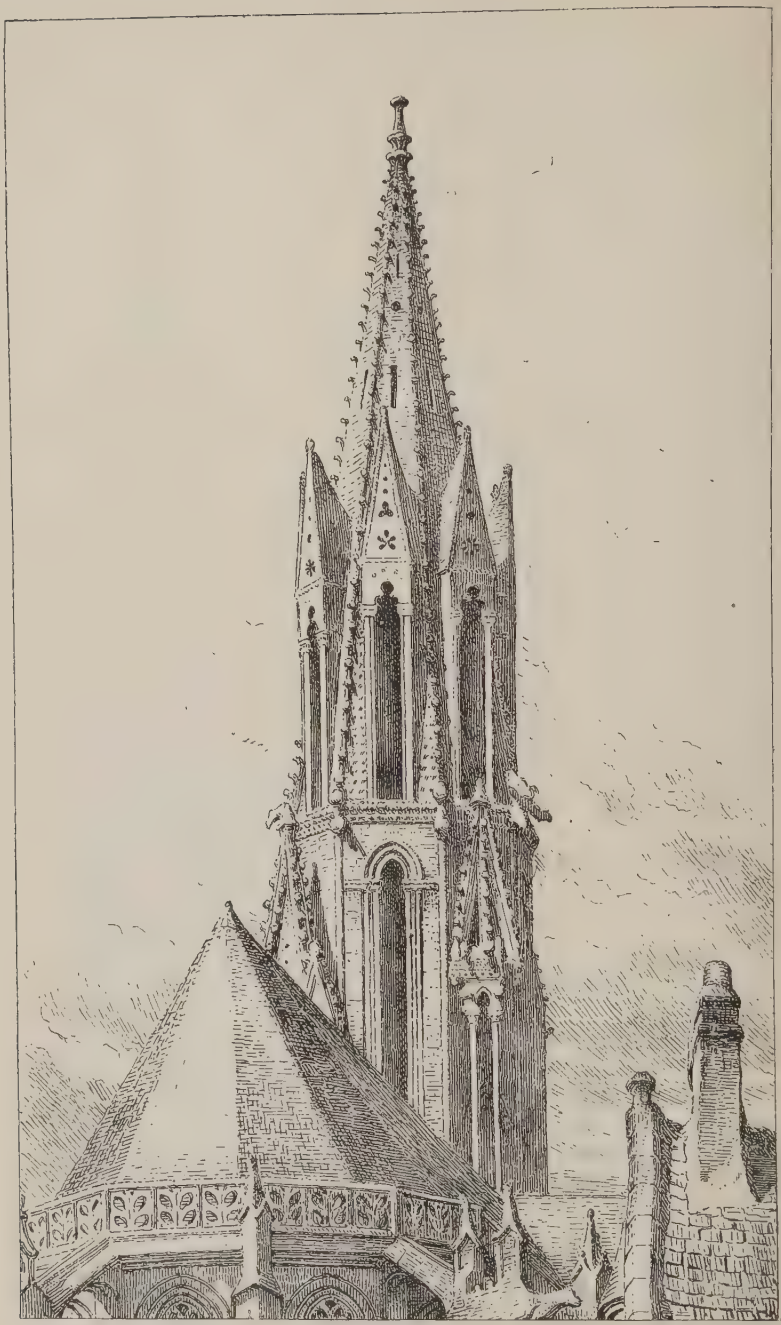

FIG. 65.

the thirteenth century. In this case the octagonal drum is much more elongated than at Chartres, as are all the other proportions of the structure. The pinnacles which here also rise from the angle buttresses are triangular in plan, and consist each of three slender monolithic shafts, which reach to about one-half the height of the drum, carrying pointed arches surmounted by acute pyramids. The axes of these pyramids are not vertical, but are inclined inwards towards the diagonal faces of the drum, preparing the eye for the inclined lines of the spire, their apexes rising just above the drum cornice. A tall pointed arched opening pierces each cardinal face of the drum, and a tall dormer, with acute and pierced gable, breaks each face of the spire. Above these members the walls of the spire are pierced on each face with two narrow upright openings and one circular opening. Engaged coursed shafts rise against the angles of the drum, and crockets adorn the angles of the spire and of the summits of the pinnacles.

In spires of this form the diagonal walls of the octagon are sustained by squinches in the re-entering angles of the tower, and these, with their superstructure, bind and weight its walls, and thus help to consolidate the fabric; while the oblique pressures of the spire are reduced to a minimum by thinness of masonry, and by the weight of the abutting dormers.

Of early Gothic spires on a large scale few now exist. In many of the cathedrals and larger churches the progress of the works was arrested before these features were reached, as at Paris; and in others spires were constructed and subsequently destroyed, as at Laon. But such constructions as we have noticed are enough to show that the imaginative and mechanical resources of the Gothic artists were largely displayed in them as well as in other parts of the fabric.

In the general external aspect of the French-Gothic church, except in that which is presented by the front, the structural system is everywhere plainly expressed. We see at a glance that this is not an architecture of walls and trussed timber roofs, but that it is an architecture of vaults maintained by piers and buttresses. So marked is this appearance that M. Renan, in his excellent

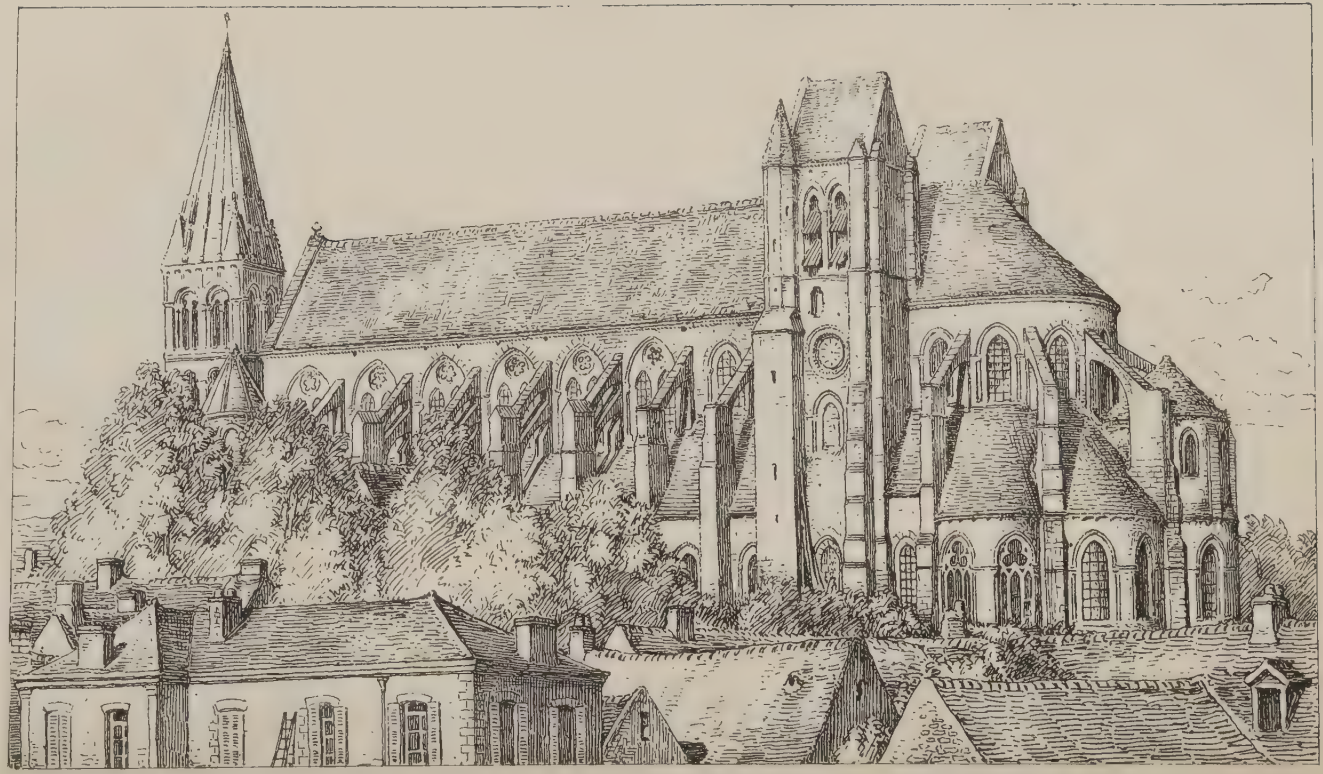

FIG. 66.

remarks on Gothic art,[1] likens the Gothic edifice to an animal, with its *charpente osseuse autour de lui.* In the frankness with which its functional members are confessed, joined with the skill with which they are at the same time wrought into adornments, reside largely the grandeur and the impressiveness of the external aspect of a great Gothic cathedral.

The general proportions of the exterior are sometimes criticised. But it is often forgotten that hardly any of the great early churches were completed according to the original designs; and that not one of them has come down to us without having undergone considerable and often very damaging alterations. The churches which were the most nearly completed, and have suffered least from alterations, are generally remarkable for justness and harmony of proportions.

As illustration of the general external aspect two examples may be taken—one an early and the other a later structure. The first is the Abbey Church of St. Leu d'Esserent (Fig. 66), and the second is the Cathedral of Reims (Fig. 67). Both exhibit parts which belong to different periods of construction; but these parts are, for the most part, of admirable character, and they assist in forming exceedingly grand and harmonious wholes.

In the view of St. Leu we have the apse, the apsidal chapels, the eastern towers, and the choir, all of which date probably from about 1170.[2] We have also the nave—which must have been completed before the close of the twelfth century, or very early in the thirteenth—and one of the western towers, which is a remnant of an earlier edifice. With exception of the western tower, which is ill adjusted to the reconstructed nave, the total composition is conspicuously fine in its groupings and just in its proportions. It is, in fact, one of the best remaining examples of the simple

1 "Discours sur l'État des Beaux-Arts" in the *Hist. Littéraire de la France au Quatorzième Siècle.* Par Le Clerc et Renan. Paris, 1865.

2 I judge of the date by the style of the design alone. It is, on the one hand, so closely similar in character to the style of the eastern portions of the neighbouring Churches of Senlis and Noyon as to warrant the belief that the construction was not much subsequent to them in date; while, on the other hand, the style of the capitals of the interior is such as to indicate that they must have been wrought subsequently to those of the choir of Paris, which was begun in 1163.

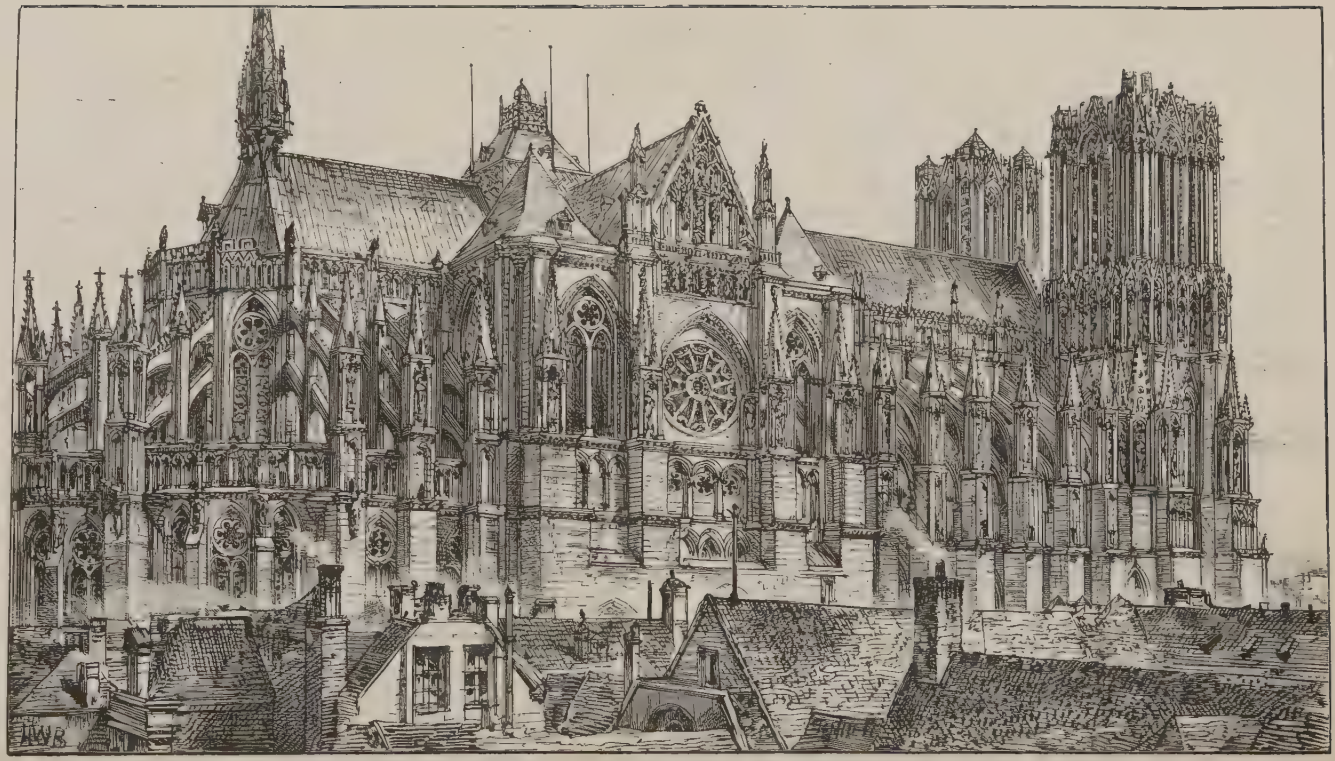

FIG. 67.

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grandeur and purity of style of the Gothic monuments of the twelfth century.

The general view of Reims presents a striking consistency and harmony of parts which is equalled by that of few other French cathedrals, notwithstanding that the total composition comprises portions that were wrought at successive periods from 1212 to the early part of the fifteenth century. The earlier and later portions, with exception of the gable of the transept, are hardly seen in the general view. The visible portions of the choir, the transept, and the nave were, for the most part, all built in the thirteenth century, after 1240, about which time the work was recommenced after a delay that followed the construction of the lower portions of the east end.[1]

These two examples afford an interesting comparison—the one showing the unadorned condition of external features which is characteristic of the time when structural exigencies were first being successfully met, and the other showing the richness of the full development—when the edifice stands forth clothed in a vast wealth of appropriate adornment. Each condition has its own proper charm; but there is something in the restraint, and even in the severity, of the early structure which holds our admiration almost more than the magnificence of the later one.[2]

We have now, perhaps, examined enough of these structural forms to have gained a fair understanding of them, and of their animating principles. They were the result of an unparalleled impulse which had its source in the social improvement which marked the eleventh century. The numbers of churches that were erected in the Ile-de-France during the first half of the twelfth century is astonishing. No other part of Europe can show anything like it.[3] And this activity continued and gathered force for at least three-quarters of a century after 1150.

[1] For further particulars concerning the dates of the different portions of this cathedral, see Viollet-le-Duc, *s.v. Cathédrale*, p. 315, *et seq.*

[2] Although St. Leu is a church of moderate dimensions, while Reims is a cathedral of the first magnitude, the comparison still affords a good illustration of the primitive and the mature characteristics respectively. Among the larger buildings of the time of St. Leu hardly any retain so much of their original aspect.

[3] A glance at the *Carte des Monuments Historiques de France, indiquant les Écoles d'Art du territoire Français pendant la première moitié du XII^e Siècle*,

We have examined but a few (though we have examined some of the most important) of the buildings of this remarkable epoch; but in nearly all the rest we should find substantially the same progress and the same leading characteristics. The movement was general throughout the region where it arose, though there was a promptness of development in some localities that was not shown in others. The spontaneous character of the movement is conspicuous also as well as its general prevalence. All the elements of the new style were products of the soil on which it grew, or of the immediately adjacent districts. Of imitation of foreign developments there was none; there was not anything elsewhere at this time to imitate. After the beginning of the twelfth century every traditional element of building was here subjected to a process of re-creation which was not superficial but radical.

It will be seen that the foregoing summary of the structural characteristics of French Gothic agrees with that which was given of Gothic construction in the preceding chapter. For, in fact, any correct definition of Gothic must be derived from analysis of the buildings of the Ile-de-France, as will, I think, plainly appear after we have examined the contemporaneous architecture of other countries.

A constant characteristic of this French Gothic is that structural and artistic principles go hand and hand in it. It does not appear that two independent processes were carried on in the minds of the designers—the one mechanical, and the other artistic. Artistic qualities are so wrought into the construction, have so little independent existence, that we feel the two principles to be inseparable in this art. The builders were artists; and they invariably wrought with a steady regard for and sense of proportion and harmony, not less than of mechanical propriety. I would especially emphasise this, lest from this somewhat lengthened examination of its structural growth it should be in any measure inferred that Gothic architecture was such a growth merely.

We have in this chapter followed with some fulness the development of French Gothic from its inception to its

published by the French Government, shows this district thickly studded with churches, while in the neighbouring provinces they were more or less sparsely scattered.

maturity. We have found the first distinct indication of the formation of a new style in the apsidal vaults of Morienval, succeeded by vaults constructed on thoroughly Gothic principles in the Abbey Church of St. Denis. We have seen the development extended in the Cathedrals of Senlis and Noyon. We have found in the Cathedral of Paris every functional member complete, and the Gothic system therefore fully developed, though more or less that is unessential, preventing the perfect expression of the Gothic spirit, still clings to it. We have next seen these lingering remains of Romanesque art—chiefly the extensive and massive wall enclosures—gradually eliminated, and the Gothic spirit more thoroughly pervading every part of the building in the early portions of Reims, in the remodelled portions of Paris, and finally in the nave of Amiens, where the transformation from the old style to the new is for the first time wholly accomplished.

In France, then, the Gothic style is found germinating by the beginning of the twelfth century in Morienval, has accomplished its structural transition by 1163 in the design for the choir of Paris, and has reached its fullest distinctive perfection by 1220 in the design for the nave of Amiens.[1]

In the next succeeding chapters we shall see how far and how early a similar novel system of building existed elsewhere in Europe.

[1] I take the dates of the beginnings of Paris and Amiens as marking the steps of progress indicated in the text, because the architects had unquestionably matured their schemes, as to their general characteristics, before the works were begun.

CHAPTER III

POINTED CONSTRUCTION IN ENGLAND

FEW instances of the constructive use of the pointed arch, or of the employment of groin ribs in vaulting, occur in England prior to the rebuilding of Canterbury Cathedral by a French architect, which was begun in 1175. One instance, however,

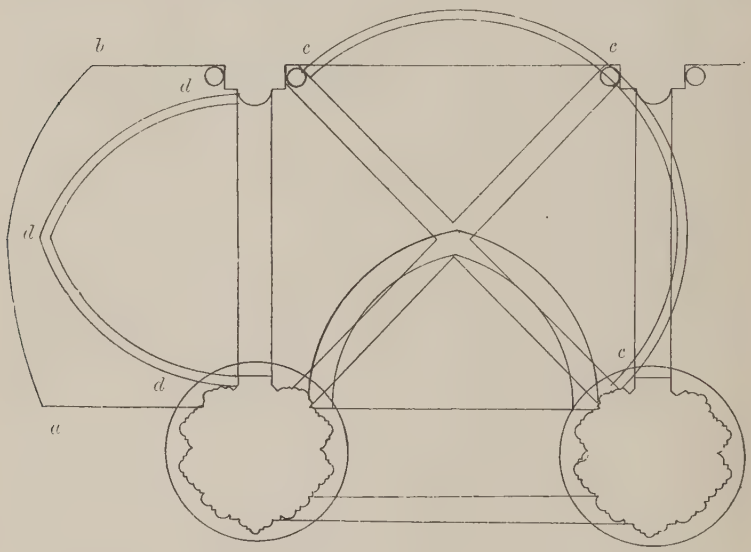

FIG. 68.

occurs at an early date in Malmesbury Abbey, a building which is nearly contemporaneous with St. Denis in France. Here in the vaults of the aisles we have a distinct approach to Gothic construction. These vaults, though simple in form and ponderous in their parts, are yet certainly advanced

in character for their time. In them the principle of interpenetrating round vaults, the forms of whose arches are necessarily determined by the forms of their surfaces, gives place, in a measure, to that of an independent system of arches which command the forms of the vaults. The diagram (Fig. 68) will explain their character. It will be seen that the pier arch and the transverse arches are all pointed, and that the diagonals are semicircular. It will be seen, too, that the crowns of the diagonals reach to a considerably higher level than those of the transverse and longitudinal ribs, and that consequently the vaults are, like early French vaults, considerably domed, as in the section *a*, *b*. The ribs are much less developed in section than the ribs of the vaults of St. Denis—the diagonal rib, *c*, being so shallow as apparently to add little strength to the groins, and the transverse ribs, *d*, being plain square-edged arches of little projection.

It is evident that the central aisle was originally designed for vaulting with quadripartite vaults, since a group of three vaulting shafts rises from each pier capital. These shafts clearly belong to the original construction, as may be seen (Fig. 69) by their perfect adjustment with the imposts of the great arcade, and by their being banded by the original triforium string. They emphasise the divisions of the bays and give a continuity to the vaulting system, like that which is characteristic of Gothic design in France. Another feature with a likeness to French design is the wall which shuts off the triforium arcade, screening from view the timber roofs over the aisle vaults. This arrangement was not followed in the subsequent pointed architecture of England, where the timbers of the aisle roofs are generally visible from the pavement of the central aisle. In all other respects the structure is strictly Norman-Romanesque in character. The great arcades are supported by ponderous round columns, the spaces between them being not quite equal in extent to two of their diameters; hence the massiveness of the construction is in striking contrast to the comparative lightness of St. Denis. It may be noticed in passing that the hood-moulding over the pier archivolts is an early instance of a feature that afterwards became practically constant in the pointed architecture of England. But this feature, whose

real function is to protect the parts beneath it from the weather, is hardly appropriate to an interior.

The existing high vaults are of late English construction, and are ill suited to the lower portions of the building. If the originally intended vaults were ever built over the

FIG. 69.

central aisle, the effect of the interior must have been both grand and impressive, though the scale of the building is not large.

Such a building might lead to the belief that a Gothic development, though not a native one, had begun in England almost as early as in France. But Malmesbury stands an isolated instance, and there is no other contemporaneous building in England like it. It is not, like St. Denis, a link

in a chain of progress. Its vaulting is an imitation of French work. Nothing in the island leads up to it, and nothing directly comes of it. The building is not even consistent with itself as one really animated by a new principle would be. The new form of vaulting does not, as at St. Denis, influence other parts of the structure. Its Norman builders were not thoroughly imbued with those structural principles which led Suger's workmen to give such consistency to every part of the French fabric.

The buildings which immediately follow Malmesbury show less, rather than more, approach to Gothic principles. The early Cistercian Abbeys of the north exhibit no new principles. In them the pointed arch occurs, indeed, more or less frequently in arcades and openings, but it is without influence upon modes of vaulting, and without structural consequence in the general system. Vaulting, when it occurs in these abbeys, is often of a very primitive and even rude sort. The aisles of Fountains Abbey (Fig. 70),[1] which date from about the middle of the twelfth century, are, for instance, vaulted with a succession of pointed vaults without penetrations,[2] which are carried on heavy transverse round arches springing from the piers on the one side, and from corbels projecting from the wall on the other. With exception of the pointed form the construction of these vaults is substantially the same as that of the vaults of the aisles of the Basilica of Constantine at Rome. The central aisle of Fountains was neither vaulted nor intended for vaulting. The interior of the nave consists merely of broad, bare, and massive walls carried on heavy pointed arches, supported by plain round columns, and pierced above with small openings. There are no triforium openings, and there is nothing whatever of new structural principle involved in any part. In Kirkstall Abbey, which is of about the same date, the aisle vaults are groined, and have a full system of ribs—those which bound the compartments being pointed. The arches of the pier arcade are pointed, and are of three orders, and the piers are composed of grouped members answering to these orders.

[1] I take this figure from Sharpe's *Architectural Parallels*.

[2] It may not be generally understood that a vault without penetrations is a vault not crossed by another vault. The vault referred to in the text differs from a plain barrel vault only in having a pointed arched, instead of a round arched, section.

No central vaults ever existed, and the design above the pier arcade is the same as at Fountains. It is simply heavy Norman work with pointed arches substituted in some places for round ones.

Thus far in England, though the Cathedrals of Senlis and Noyon were now building across the Channel, there is nothing more advanced towards Gothic. But on the contrary, even

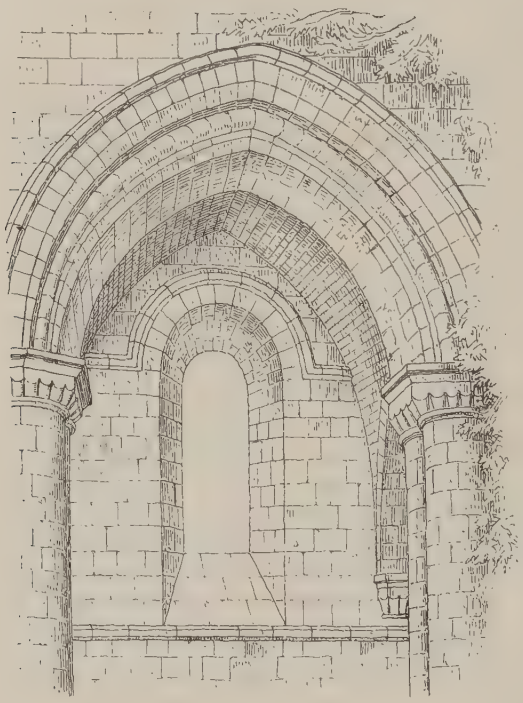

FIG. 70.

later than this time, such important works as the Galilee of Durham,[1] the naves of Peterborough and Ely, and many other buildings, were constructed in the unmodified Norman style. No important structural change extending through a whole edifice is manifest in England till William of Sens begins that rebuilding of the choir of Canterbury to which I have referred. And even this building, though a very beau-

[1] The Galilee of Durham is usually classed, by English writers, as transitional. But in structural principles it is Norman of the most primitive type, notwithstanding the slenderness of its columns.

tiful and important one, is not—owing perhaps largely to the fact that its designer was hampered by the necessity of pre-

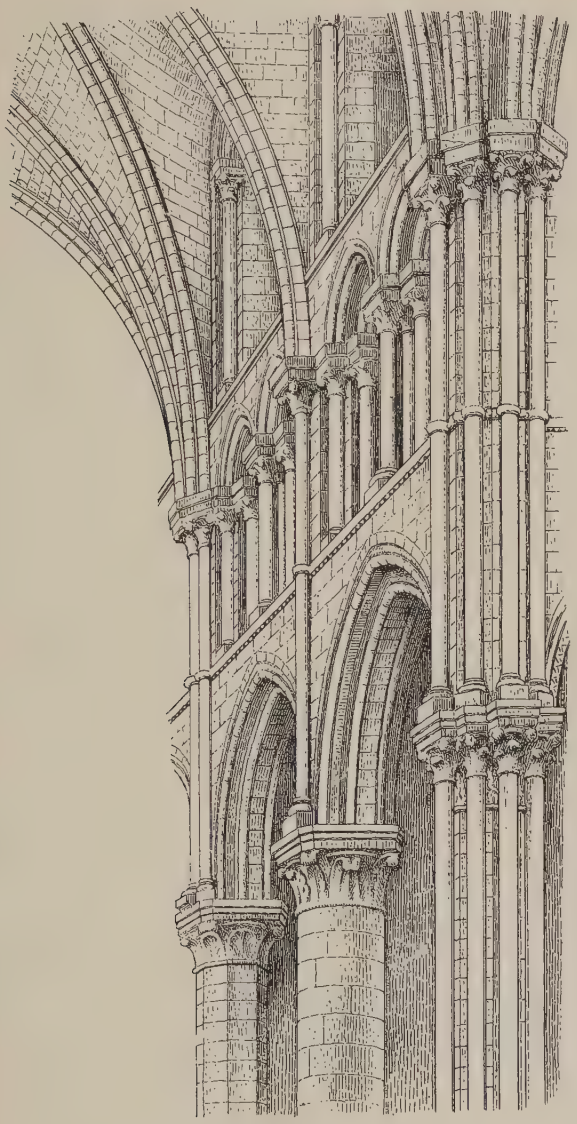

FIG. 71.

serving and working into the new edifice portions of the previous Norman fabric—so frankly and fully Gothic as the choir of

Paris, which had been designed more than a decade before. This choir of Canterbury (Fig. 71) is the real beginning of what Gothic there is in the pointed architecture of England. From it, as the main source at least, is derived what is commonly known as the Early English style. It is in five bays, and is vaulted with one quadripartite and two sexpartite compartments. These vaults are provided with transverse and diagonal ribs, but are without longitudinal ribs. The transverse ribs only are pointed. The vaulting shafts correspond in number with the ribs to be carried—there being three in the main group and but one in the intermediate pier. The single shaft in the intermediate pier was probably derived from Sens, where the longitudinal rib shaft is carried on the clerestory ledge, rendering a single support for the intermediate transverse rib all that is necessary. We shall presently see that this single vaulting shaft subsequently became frequent in England, where, with little constructive propriety, it is made to carry the three ribs of quadripartite vaults.

The vaulting shafts at Canterbury rest on the capitals of the ground-story piers, which are alternately round and octagonal columns. The pier arches are pointed and of two orders of square section, such as are characteristic of contemporaneous design in France. The triforium, in this portion, consists of pointed arches of two orders carried on monolithic shafts. The clerestory is in two planes, divided by a passage way. The inner plane is pierced by three pointed arches—a larger central arch with one lesser arch at each side,—which together nearly fill the space enclosed by the vault. The outer plane is pierced by a single obtusely pointed arch. This form of clerestory, with round arches in place of pointed ones, is of Norman origin, as may be seen in Durham Cathedral and elsewhere. With more acutely pointed arches it subsequently became the characteristic form in the so-called Early English style.

Though the constructive system of this choir is as a whole less complete than that of contemporaneous buildings in France—having a very undeveloped buttress system,—it is yet internally a very beautiful and an almost strictly Gothic structure; but it is altogether an importation from the Continent, and in no sense a native development. No monument of like importance, and none whatever of the

same character, had before been erected in England. Its novelty struck the minds of all who beheld it with wonder and admiration.[1]

It was natural that such a building should excite emulation, and the lesson which it taught bore fruit in some of the important erections which quickly followed it. Among the earliest of these were the more easterly portions of the same cathedral, the east end of Chichester, and the choir and east transept of Lincoln. After the completion, by William of Sens, of the choir and a portion of the east transept of Canterbury, the master, having received injuries in a fall from the scaffolding, relinquished the work and returned to France. He was succeeded by another William, said to have been an Englishman.

It is difficult to distinguish with precision the beginning of the work of the second William. His whole work was, for the most part, a mere carrying-out of the original design of William of Sens. A few round abaci occur in the crypt and on the east side of the transept, which are probably the work of the second William; everywhere else the square abaci and the mouldings of the original design are retained, as well as the French forms of pointed arches.

The Cathedral of Chichester was, like Canterbury, originally a Norman structure of the end of the eleventh century. It was extensively damaged by fire in the year 1186, and immediately thereafter repairs were begun which involved the entire rebuilding of the two easternmost bays (Fig. 72).[2] At the same time the whole church, including these two bays, was vaulted with quadripartite vaults having transverse and diagonal ribs, but no longitudinal ribs, which last are usually wanting in the early pointed vaults of England. These ribs interpenetrate at their springing, and thus are gathered upon a single round abacus which covers a triple group of capitals. They receive no support from the lower piers, but their triple vaulting shafts, which are slender and closely grouped, are sustained by corbels placed just above the capitals of the lower piers. The lower pier (section, Fig. 73) consists of a

[1] See the account of the rebuilding of this choir by the Monk Gervase in Willis's *Monograph on Canterbury Cathedral.* London, 1845.

[2] I copy this and the following figure from Willis's *Architectural History of Chichester Cathedral.* Chichester, 1861.

central round column of coursed masonry, surrounded by four widely detached monolithic shafts, which are adjusted

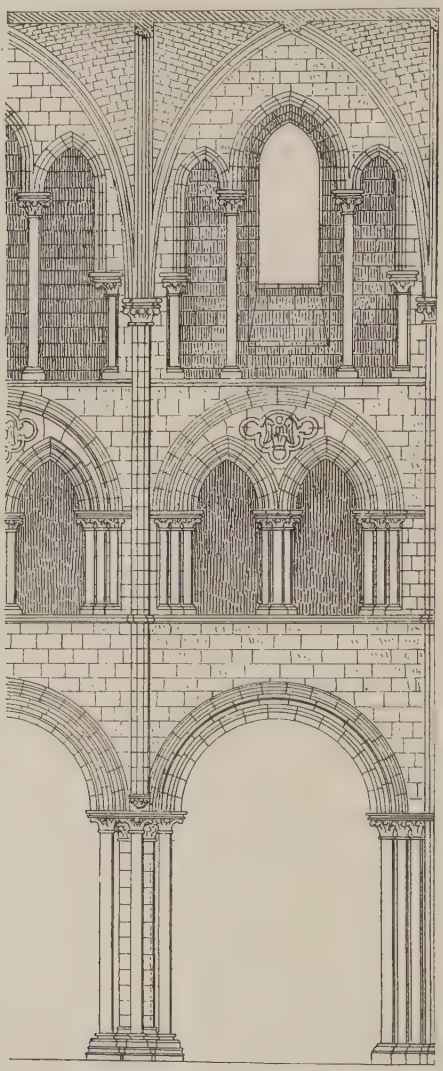

FIG. 72.

to the arch orders of the ground-story only. We have here an early instance of that want of structural continuity which is a marked characteristic of pointed architecture in

England.[1] An instance of a compound pier, none of whose members are directly employed in the support of the vaulting, never occurs in the Gothic of France. Another defect of this pier of Chichester is that of the great distance at which the lesser shafts are placed in relation to the central column, which destroys that compactness of the group which is essential to strictly Gothic supports. The compound capital, too, which is in idea the same as that of the pier at the west end of the nave of Paris—described in the last chapter—necessarily shares this want of compactness, and thus the whole pier compares unfavourably with the French example.

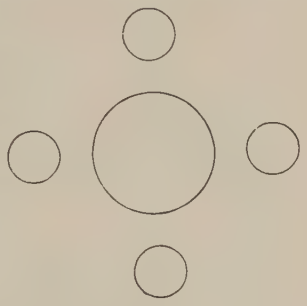

FIG. 73.

The pier arcade is round arched and of two orders, the triforium consists of a round arch in each bay encompassing a sub-order of two pointed arches carried on clustered shafts, and the clerestory is substantially the same as that of Canterbury. Externally there is a shallow buttress against the clerestory wall, which is reinforced by a flying buttress of a purely French type, perhaps the earliest instance of a fully developed flying buttress in England.

The characteristics of this building are thus mixed. It is not, like Canterbury, a French design, but it is apparently the work of Anglo-Norman architects who adopted certain features of the growing French style, and naturally modified them according to their own tastes, but failed to perceive their functional connections and structural logic. Yet, notwithstanding the want of structural consistency, there is a good deal of beauty in this work.

Almost immediately after Chichester (probably about 1190) were begun the deservedly famous choir and the east transept of Lincoln Cathedral. In this beautiful building

[1] Sir Gilbert Scott, in his *Lectures on the Rise and Development of Mediæval Architecture*, vol. ii. p. 142, speaking of the development of the system of receding arch orders, says: "This gives us also our clustered columns, which are, in fact, the mere decoration of the receding orders of the piers." It is true that the clustered column in England is usually nothing more than this; but in true Gothic the grouping of members in the pier has reference primarily to the vaulting and not merely to the arch orders.

there is manifest a curious mingling of foreign [1] and Anglo-Norman characteristics.[2] It is, in the main, an Anglo-Norman modification of that portion of Canterbury which was designed by William of Sens. Bishop Hugh, during whose episcopate the work was executed, was a Frenchman by birth and early training ; and his architect, Geoffrey de Noyers, though perhaps, as has been affirmed, born on English soil, was in all probability, as the name indicates, of French or Norman extraction. However this may be, the plan of the edifice—especially that of the original east end —is distinctly French ; and French characteristics, modified by Anglo-Norman taste, prevail throughout. In general, the foreign influence governs the construction, while the Anglo-Norman influence appears in the decorative details. Structurally, there is no other building in England that exhibits so much of Gothic character except Westminster Abbey, which is rather a French than an English design.

The original eastern termination of this choir was destroyed to make room for the existing Presbytery. It was apsidal, with an apsidal aisle and three apsidal chapels.[3] Each arm of the transept had two apsidal chapels on its eastern side, three of which remain unaltered, and the fourth, the north chapel of the north arm, has recently been

[1] Parker, in his book entitled *An Introduction to the Study of Gothic Architecture*, and some other English writers have advanced the utterly untenable theory that the choir of Lincoln is purely English work, showing no trace of foreign influence. Such a theory is not worth serious consideration in view of the facts regarding the state of England and of native English arts at this time.

[2] I say Anglo-Norman rather than English. For whatever part native Englishmen may, at this time, have taken in architectural works, there can be no doubt that all such works, when not, like the choir of Canterbury, wholly conducted by Frenchmen, were mainly directed by Normans, or by men of chiefly Norman descent. The architecture itself makes this clear enough. Substantially, everything in it which is not distinctly French may be traced to the early and contemporaneous Norman work both in Normandy and in England. There are, indeed, certain minor peculiarities of design which may be attributed to native influence. Native workmen were doubtless largely employed, though certainly for the most part in subordinate capacities. Moreover, the fusion between the two races, which by this time had made considerable progress, would naturally tend to produce men of mingled genius, whose work would partake of both Norman and English characteristics. And such work we actually find in the choir of Lincoln and in other early pointed buildings in England.

[3] The plan of this apse was recovered during the last century when the pavement of the Presbytery was taken up for repairs. A partial excavation made in December 1886 in the south aisle of the Presbytery again laid bare a portion of the old foundation.

restored after having been elongated in the form of a rectangle (Fig. 74). Westward of this transept the choir is prolonged to the extent of four bays, and is terminated by a second transept—a construction which, with exception of a portion of its eastern side, is a work of the first quarter of the thirteenth century.

FIG. 74.

Lincoln Cathedral is vaulted throughout. The vaults of the choir are curious and even awkward in form; they are difficult to describe clearly in words, but the plan, Fig. 75, shows the arrangement of their ribs; and the elevation, B, Fig. 78, gives the form of the longitudinal arch which is also curious. It will be noticed that the lateral cells are set obliquely, so that they do not meet each other in the centre of the compartment. But in principle they are substantially the same as ordinary quadripartite vaults, each compartment being complete in itself. The rib system includes a longitudinal ridge rib, probably the first instance of the introduction of this structurally useless member which subsequently became an almost constant feature of English vaults. The longitudinal arch is not provided with a rib; but in place of it there is merely a slender moulding. This longitudinal arch springs from the same level as the transverse and diagonal arches, and hence the vaulting conoid is spread out over a considerable extent of wall (its

middle section being nearly square) instead of being concentrated, as in French vaulting, upon the pier.

The upright supports of these vaults consist of a single vaulting shaft against each pier, upon the capital of which the ribs are all gathered. This vaulting shaft descended to the pavement, forming one of the members of the compound pier of the ground-story.[1] The lower piers vary in design, but are alike in general principle. The typical form is that of a central octagonal column of coursed masonry, having four of its sides hollowed. Against these hollowed or channeled sides are grouped respectively four slender monolithic shafts carrying the ribs of the central vaults, the ribs of the aisle vaults, and the sub-orders of the pier arches. The whole system is shown in the section, Fig. 76, through one bay of this choir.

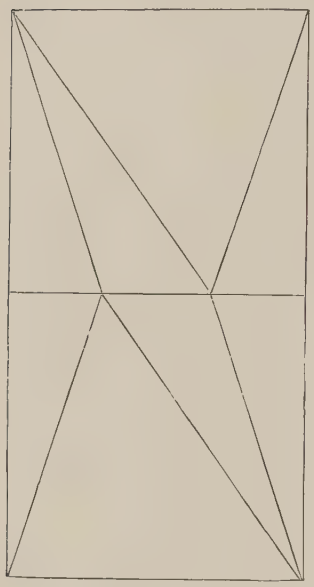

FIG. 75.

Unlike the pier of Chichester before noticed, this pier of Lincoln has a functional relation to the vaulting similar to that of the westernmost pier of the Cathedral of Paris, though in its proportions and in its details it is very different. It is constructively like a French pier throughout its whole height, having a buttress (*a*, Fig. 76) incorporated with it from the level of the triforium. This buttress is reinforced by an arch, *b*, thrown across the triforium, and a flying buttress, *c*, over the aisle roof; the united pressures of the central vault, the aisle vault, the triforium arch, and the flying buttress, being met by the great outer buttress, *d*, against the respond pier of the aisle. This buttress, like nearly every other part of the structure, is French in general form, and Anglo-Norman in decorative detail.

[1] At present these vaulting shafts are carried on ill-designed corbels inserted in the wall above the imposts of the lower arcade. This damaging alteration was made in the fourteenth century, when the space formerly occupied by these shafts was wanted for the existing stalls.

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At the transept crossing the piers show the influence of Canterbury most unmistakably. They are, in fact, structurally

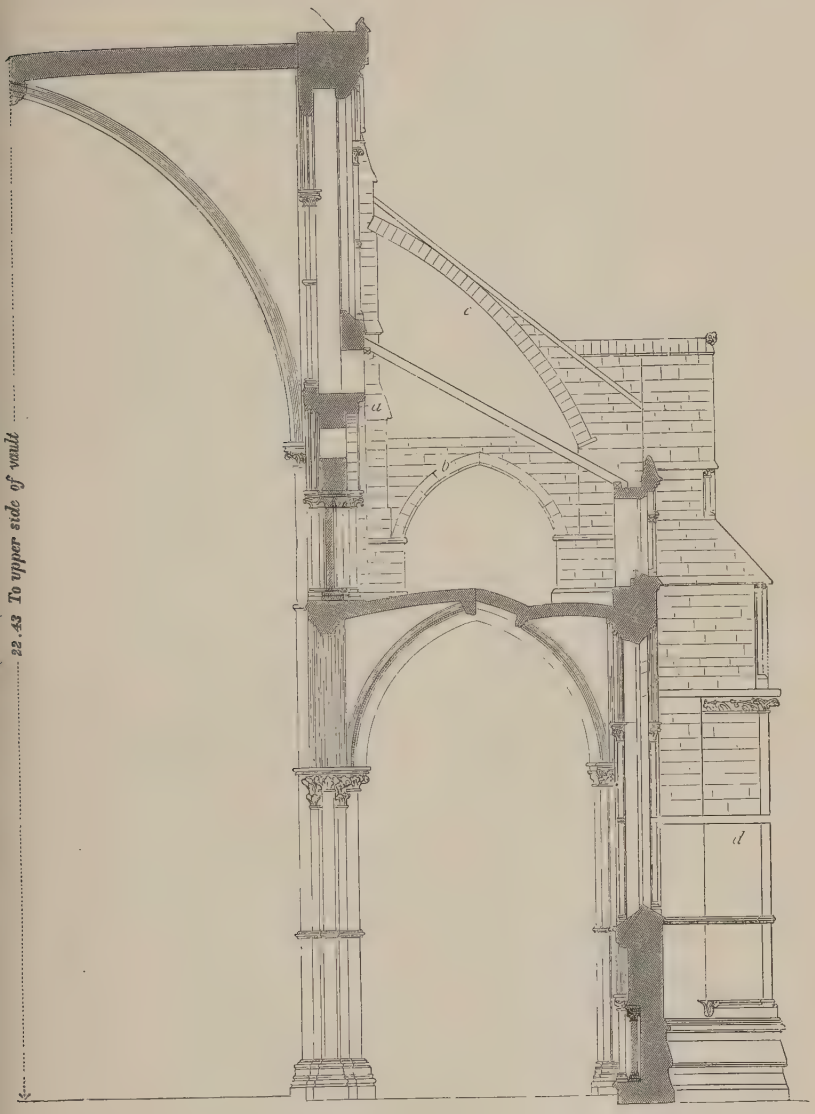

FIG. 76.

identical with the corresponding piers in the last-named building,—except that the Lincoln piers contain two shafts

(*a*, in A, Fig. 77) that have no functional office. With this exception they consist, respectively, of a central column surrounded by detached monolithic shafts, each one sustaining

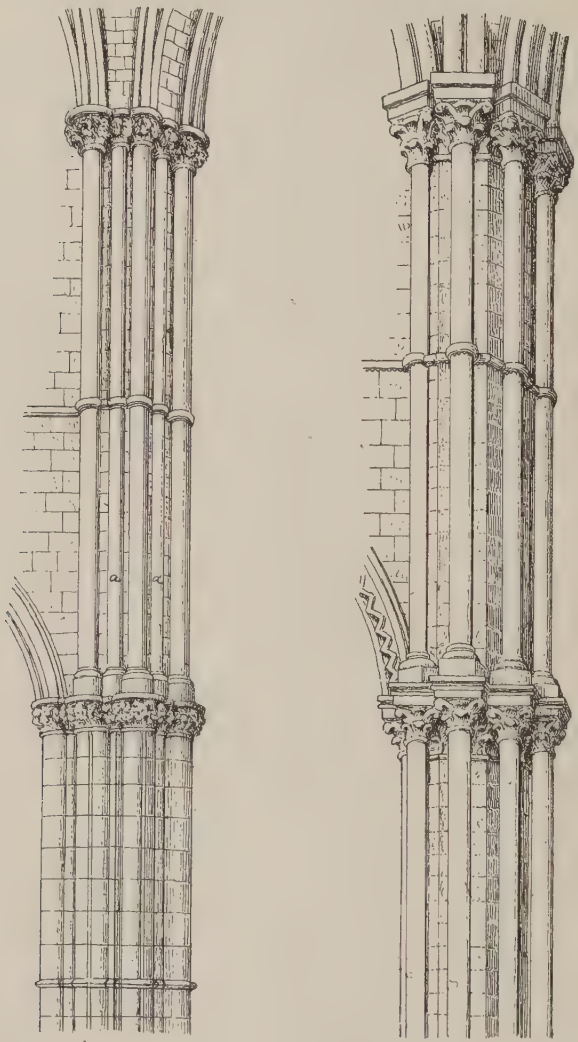

FIG. 77.

a rib of the vaulting. These shafts are in two superposed orders—the first having their capitals at the springing of the ground-story arches, and the second having bases which

rest upon these capitals and capitals at the springing of the vaults. But while at Canterbury (B in the same figure) the bases and capitals are of purely French type—the capitals having square abaci and Corinthianesque foliage, and the bases square plinths, those of Lincoln are of the newly introduced Anglo-Norman form—with round abaci, and what English writers call "stiff-leaved" foliage, and round plinths. The influence of Canterbury is shown also by the single vaulting shafts of the choir vaults; but in the use made of them the want of a fine sense of structural consistency on the part of the Anglo-Norman builders is obvious. At Canterbury, where the vaults are sexpartite, the single vaulting shaft is only employed at the intermediate pier, where it has but a single rib to sustain; while in the quadripartite vaults of the choir of Lincoln it is employed at every pier, and has to support three ribs.

The ground-story arches are obtusely pointed and of two orders. The triforium openings consist of coupled pointed arches, each arch embracing a sub-order of two lesser pointed arches carried on clustered shafts. These arches are not screened off by a thin wall of masonry from the triforium, as are the arches of Malmesbury, but they open into it, exposing to view the timbers of the aisle roofs. This exposure, as I have before remarked, is common in English churches. The clerestory is of the same type as that of Canterbury—a type which is peculiarly Norman and may be seen not only in Durham Cathedral, but even in the Abbaye-aux-Dames at Caen, where the two planes of masonry with triple openings in the inner plane occur, the only difference being that the Norman examples have but one opening in the outer plane, are more ponderous in construction, and have round arches and short thick shafts. Fig. 78, A and B, elevations of the clerestories of the Abbaye-aux-Dames and of the choir of Lincoln respectively, will illustrate this relationship.

The effect of this choir was doubtless greatly damaged by the destruction of the original *chevet*. The much over-praised angel choir is not an appropriate termination for the design, and affords no adequate compensation for the loss of the apse of Geoffrey de Noyers.

The choir of Lincoln is considered by English writers as

the first distinct example of an edifice in the so-called "Early English" style, and as a product of purely English genius.[1] It is certainly one of the few buildings in England which approach nearly to Gothic. It contains all the essential parts of a Gothic edifice; but they are so treated that a strictly Gothic result is hardly reached. That the builders did not possess a clear apprehension of the structural principles of the new style is manifest in many points. Gothic forms are used by them in an imitative rather than in an inventive way. For instance, there is a want of compactness in the lower piers, especially in those piers of the transept which

FIG. 78.

have the much-admired crockets on the angles of their central members. A pier whose component parts are thus widely detached, fails to conform to the principle of Gothic building which demands the utmost concentration of supports. The forms of the vaulting conoids, in spreading out so widely upon the clerestory wall, are a still more significant indication of the want of clear apprehension of Gothic principle; and the ponderous arches thrown across the triforium in place of a second flying buttress are yet another.

Contemporaneous with Canterbury and Lincoln is the Church of St. Mary's, New Shoreham; its ground-story, according to Sharpe, dating from 1175, and its upper

[1] "St. Hugh's choir of Lincoln Cathedral is the earliest building of the pure Gothic style free from any admixture of the Romanesque that has hitherto been found in Europe or in the world," says Mr. Parker.—*Introduction to the Study of Gothic Architecture*, p. 102.

portions from 1190 to 1210. The ground-story piers are of massive Norman proportions, and, like those of the choir of Canterbury, are alternately round and octagonal columns. Their bases have the square plinths that are common in French design of this epoch; but instead of the square abacus, almost universal in France, the capitals have round and octagonal abaci in conformity with the respective forms of the piers. The pier arches are pointed, and the walls are unbroken by vaulting shafts, the vault supports having no connection with the ground-story, but starting from the triforium level. Thus, though it is more than thirty years later, this ground-story is less advanced toward Gothic than that of Malmesbury Abbey (which, in many respects, it strikingly resembles), where the vaulting shafts rest on the lower piers. From a corbel at the triforium string rises, on each pier, a group of three vaulting shafts whose clustered capitals have abaci formed by the clerestory string, which projects at each group so as to cover them.

The vaults are quadripartite, with their ribs all springing from the same level, so that their pressures are not compactly gathered against the pier, but are diffused laterally over considerable spaces of wall. The clerestory has in each bay one small pointed opening through its massive wall. The triforium openings differ considerably one from another. The two easternmost bays have single openings, each consisting of a cusped pointed arch carried on shafts engaged with the jambs which are of plain square section. These openings do not more than half fill the spaces between the piers. The bays farther westward have coupled pointed openings in two orders, the sub-order being curiously and clumsily massive.

Conspicuous instances of a peculiar and extensive class of early pointed buildings in England are the Abbey Churches of Byland and Whitby. The pointed arch prevails throughout these buildings, except in the openings of the aisles of Byland and in the first order of the triforium of Whitby, where the arches are round. But these buildings have no vaults and were evidently not intended for vaulting, though shafts similar to vaulting shafts rise, from corbels situated a little below the triforium string, to the top of the wall. These shafts are thus only decorative features employed

precisely as were the engaged columns in the early arched constructions of the Romans, and the buildings are throughout, notwithstanding their pointed arches, the same in principle as those of round arched Romanesque design. They consist merely of massive walls with timber roofs over their central aisles; hence there are no lateral pressures calling for a Gothic buttress system, and they have no organic framework in which their strength resides.

A characteristic example of early pointed Norman design is that portion of the choir of Ripon Cathedral which was erected during the episcopate of Roger, Archbishop of York, some time between 1154 and 1181. This structure was apparently designed for vaulting, as a group of five vaulting shafts rise from the capitals of each of the lower piers, and are terminated at the level of the clerestory string by capitals in apparent preparation for a full system of vaulting ribs. But the scheme appears to have been changed when this level was reached, and a clerestory was added with a straight cornice, a single shaft being carried up from the grouped capitals of the vaulting shafts to the top of the wall. Unless this be an alteration, some form of timber roof must, therefore, have covered this choir from the first. With exception of the vaulting shafts there is no approach in this building to Gothic constructive forms, though in common with the abbey churches just mentioned, and many other contemporaneous edifices, the pointed arches of its pier arcades and other openings give the interior a superficial appearance of Gothic. The outer openings of Ripon are small and round arched like those of Durham; the walls are massive, and are provided externally with shallow pilaster strips instead of buttresses.

It will be seen that the buildings already noticed are very diverse in character, though in all of them the pointed arch is more or less generally employed. In some of them this arch is used structurally in portions of the edifice, as in the aisle vaults of Malmesbury. In others its structural use is more general, and a correspondingly functional system of supports is connected with it, so that, for the most part, a really Gothic character pervades the work, as in the choirs of Canterbury and Lincoln. But in the larger number the pointed arch is used, for the most

part, only in arcades and single openings, while other Gothic features are introduced without functional use.

This lack of structural unity exhibited by the pointed architecture of the latter part of the twelfth century in England is in marked contrast with the consistency of structural principle everywhere exhibited at the same time in the architecture of France. It shows that there was no such consistent development in the architecture of England as there was in that of France at this time. The pointed arches and other Gothic features in England, with few exceptions, were due to direct continental influence, but were merely ornamental modifications of structurally unmodified designs; and even this ornamental modification was by no means as yet universal. For contemporaneously with Canterbury and Lincoln were built the great naves of such important churches as Ely and Peterborough,[1] in which the round arched and heavy walled Norman art remains substantially unchanged. Even the aisle vaults of the nave of Peterborough, though provided with transverse and groin ribs, are in other respects essentially Norman constructions. The pointed arch is nowhere employed in them, and their workmanship is heavy and inelegant. Had there been anything in England at this time corresponding with the architectural movement of the native schools of lay builders in France, it would have been impossible that such vaults as these, to say nothing of the nave with which they are joined, should be constructed half a century after the vaults of St. Denis, and while the choir of Lincoln was building in the near neighbourhood.

The failure among the architects in England to comprehend the true principles of Gothic building becomes still more marked in the thirteenth century, as the so-called Early English style advances, and more still, as it passes into the Decorated or Geometrical. An examination of a few typical buildings of this period will illustrate this fact. Among the most important and the finest of the earlier class is the nave of Lincoln, erected between 1209 and 1235. Already in this structure are the vaults encumbered by numerous superfluous ribs,—ribs which have no necessary

[1] The nave of Ely was not completed before 1174, and that of Peterborough was built between 1177 and 1193.

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function. The employment of such ribs appears to have had a singular fascination for the English builders at this epoch,—a fascination which gathered strength as the native taste asserted itself more and more, until, in the perpendicular style,—the first style of architecture that can properly be called English,—it became predominant.

In these vaults of the nave of Lincoln there are six such ribs in each vaulting compartment—namely, four *tiercerons*, *a* in the plan, Fig. 79, and two *liernes*, *b* in the same figure. The longitudinal arches are round, and spring from a level not much above that of the springing of the transverse and diagonal ribs, in consequence of which the section of the vault-

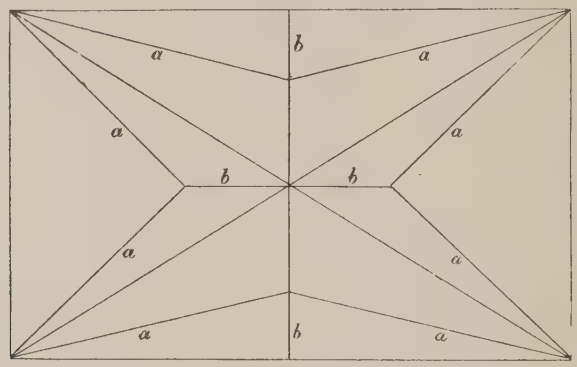

FIG. 79.

ing conoid, at the level *a*, in A, Fig. 80, is nearly square, as shown at B in the same figure. And hence here again the vault thrusts are not gathered upon the pier in a strictly Gothic manner. It will be also seen in the section B, Fig. 80, that the ribs of these vaults are so arranged as to give a convex curve to a portion of the vaulting conoid. This peculiarity marks an early step in the direction of the so-called fan vaulting system which subsequently became so conspicuous a feature of English pointed design. The rib system is mainly supported by the wall, which it penetrates, rather than by the vaulting shafts. These vaulting shafts consist of three very slender and closely grouped members rising from corbels placed just above the capitals of the lower piers; they are thus, like the vaulting shafts of Byland and Whitby, more decorative than structurally

necessary features. The grouping of members in the lower piers has reference to the arch orders and to the vaulting of the aisles only, the high vaults having no connection with them ; these piers are of three varieties, whose sections are given at A, B, and C, respectively, in Fig. 81. The small detached shafts of A and B are in two monolithic sections, and are bonded with the pier by a band at their junction. The engaged shafts of the section C are built up in courses with the main body of the pier. These are indeed pretty sections, and the actual piers are objects of much beauty, but their want of connection with the vaulting is a structural defect which among others excludes this nave from the category of strictly Gothic erections.

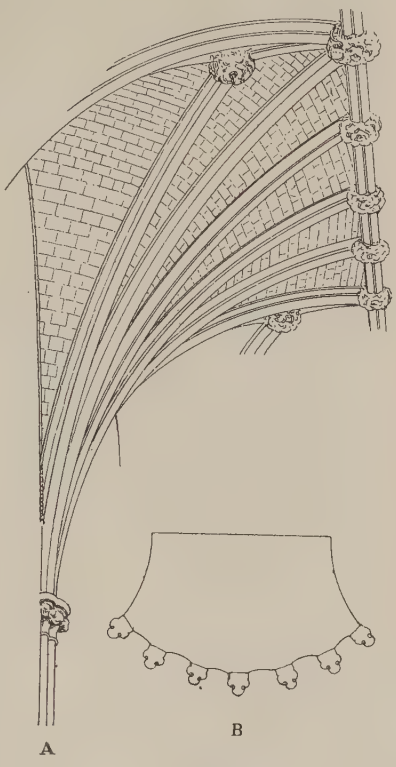

FIG. 80.

The clerestory is again of the general Anglo-Norman

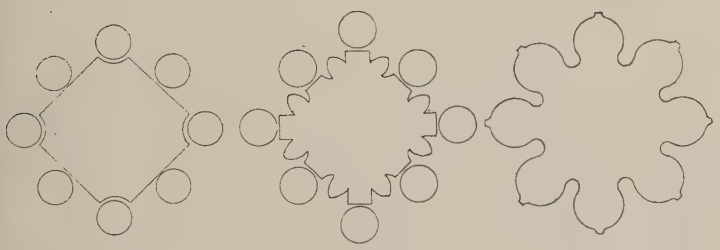

FIG. 81.

type which retains a good deal of solid wall beneath the arch of the vault. Both it and the triforium differ from

those of the choir in their proportions and in their ornamental details only.

All the arches of this interior, except those of the windows of the aisles, have hood-mouldings which add to the effect of subdivision of the arch orders—an effect that was pleasing to the Anglo-Norman taste even as early as the time of the construction of the archivolts of Malmesbury. The vaults of the aisles are in five cells as are those of the choir also, there being a half intermediate transverse rib on the wall side. This half-rib is carried by a monolithic detached shaft resting on a corbel placed just above the string-course which runs along the wall at the level of the window sills. The main transverse ribs of the aisle vaults are carried by responds consisting of five closely grouped monolithic shafts; and a cusped arcade lightens the wall space beneath the window string.

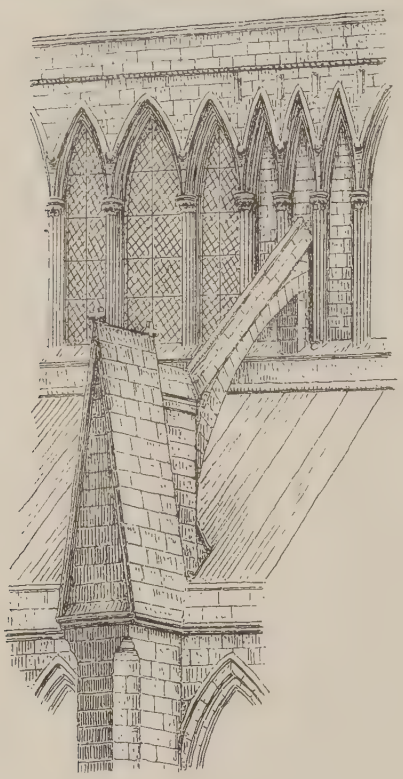

FIG. 82.

The buttress system is, like the internal vaulting system, largely wanting in structural completeness and functional efficiency. The clerestory wall is unbroken externally by pier buttresses. It has a continuous arcade of alternate groups of three wide arches, which open into the nave, and three narrow arches which are blind. The central blind arch in each group occupies the place of a pier, and into it the head of the flying buttress abuts, with the effect, to the eye, of piercing the wall. The level of the abutment is but little above the line where the aisle roof meets the wall, and

the very slight pier buttress—which rises through the roof to the intrados of the abutting arch—is hardly noticed in a general view of the structure (Fig. 82). A comparison of this clerestory with the nearly contemporaneous clerestory of the nave of Amiens (Fig. 44) affords an instructive illustration of the difference between Anglo-Norman and Gothic construction in this portion of an edifice.

The Cathedral of Salisbury is commonly considered as exhibiting the early English style in its purest form, and it is therefore an important building for comparison with the new architecture of the Continent. The structure was begun in 1220, contemporaneously with the nave of Amiens, and the two buildings may be taken as fairly typical of the respective styles. The nave of Salisbury is roofed with quadripartite vaults of greater simplicity than those of the nave of Lincoln. Its rib system contains none but functionally necessary ribs, and in this system, as well as in the forms of the vault surfaces, there are many points of likeness to French vaulting. The most important of these is that which results from the forms of the longitudinal arches, which rise for some distance in a line more nearly vertical than is common in England, and give something of those twisted surfaces that characterise more truly Gothic structures. Fig. 83, a perspective view of one of the vaulting conoids, will illustrate this. In this vaulting the longitudinal arch is provided with a more pronounced rib than is usual in buildings of this class. An important structural defect will

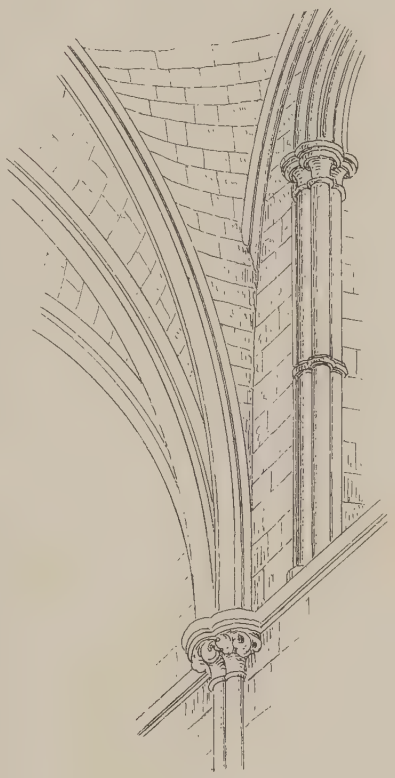

FIG. 83.

be noticed in the absence of upright supports for the longitudinal ribs; these ribs have no visible supports whatever, but merely die against the vertical portions of the vault surface. Of connection between the vaults and the lower stories of the structure there is less than in any vaulted

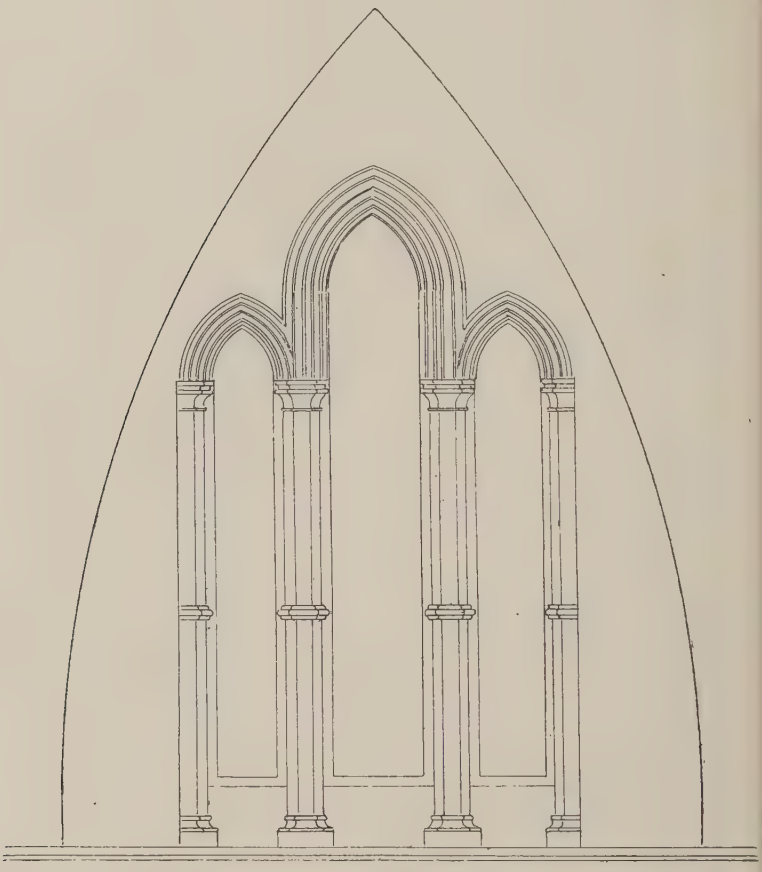

FIG. 84.

building that we have yet noticed—the vaulting shafts resting on corbels situated far above the springing of the triforium arches. There are thus no continuous upright members embracing even two of the stories; and there would be hardly less structural continuity from the pavement if these vaults were carried on corbels at their springing. The ground-story and the triforium are merely two super-

posed arcades entirely unconnected with each other by any vertical members. The triforium string forms a cornice to the ground-story which is continuous from one end to the other of the nave. The interior system is thus better adapted to a timber roof than it is to a Gothic vault. The clerestory is walled in, as is usual in England, and is lighted (Fig. 84) by the customary triple openings. It is hence, in common with most others in the island, in marked contrast with the clerestories of France, in which, by this time, no wall whatever remained beneath the arch of the vault. This shows how the wall was clung to in the architecture of England, and how the openings remained merely windows in walls; whereas, in the architecture of France, the structural idea of windows gives place to that of entire voids between the arches and their supports. However large these triple windows in the Anglo-Norman clerestory may be, and they are at Salisbury about as large as they can be, there remains a vast structural difference between such a clerestory and one like that of Amiens, where the longitudinal rib of the vault and the archivolt of the opening become, as we saw in the preceding chapter, one and the same member. The triforium consists of a very obtusely pointed arch of three orders encompassing two lesser arches, each again embracing two still smaller ones. The encompassing arch is so depressed as to ill accord with the more acute forms of those with which it is associated, and its sides are so slightly curved that an angle is formed at the springing, repeating the same awkward peculiarity of the clerestory. The great arches of the ground-story, like the other arches in general, are equilateral—that is to say, the centres of their curves are in the angles of the bases of equilateral triangles, and are thus situated at the points of springing. This form of arch, or a form closely similar, generally prevails in France, and is also very common in England—as in the Chapel of the Nine Altars at Durham, the Presbytery of Ely, and in many of the abbey churches, such as Tintern, Bridlington, Netley, Rivaulx, Whitby, Byland, Kirkstall, and others. But the distinctively Anglo-Norman type is rather the lancet form, the centres of whose curves lie beyond the points of springing—as in the smaller arches of the nave of Lincoln, and the pier arches of Westminster Abbey. The arch

sections are rounded in accordance with the usual Anglo-Norman custom, and the archivolts are everywhere provided with hood moulds. The lower piers are plain round columns of coursed masonry, with which are grouped four slender monolithic shafts, the whole forming a compound member, whose parts correspond with the orders of the superposed arches.

The buttress system of Salisbury is very imperfectly developed, nothing more than a shallow pilaster strip appearing externally. Beneath the aisle roof a flying buttress is brought to bear upon the wall at the springing of the vaults, which aids in resisting, though it does not wholly bear, the lateral pressures, these being largely overcome by massiveness of construction in the walls.

It will thus be seen that Gothic principles are, at most, but very imperfectly embodied in Salisbury. There is, in the structure, no continuous pier reaching from the pavement to the cornice, no well adjusted and externally apparent buttress system, and consequently no complete and functional framework. It is essentially a walled building which, though not so ponderous in effect as that of Durham, is yet, in principle, notwithstanding its pointed arches, its multiplied mouldings, and its slender shafts, little different from it in structural character.

Perhaps the next English cathedral of importance, though it is not a building of the first magnitude, is that of Wells, whose nave and transepts, erected during the episcopate of Bishop Jocelin (1206-1242), are contemporaneous with the naves of Lincoln and Salisbury. In the nave of Wells we have a repetition of some of the peculiarities which have just been noticed in that of Salisbury, while it exhibits some other features that depart still more widely from Gothic principle. Here, as at Salisbury, the vaults are, indeed, of true Gothic form, but the vaulting shafts descend but little way below the clerestory-string, and thus the bays are undivided by continuous upright supports. The triforium is an unbroken arcade of narrow openings extending along the whole length of a massive wall. The piers and pier arches are excessively ponderous, though their effect is lightened by numerous subdivisions into shafts and mouldings. The buttress system consists, again,

of concealed flying buttresses and external pilaster strips. Thus with Wells as with Salisbury there is no real skeleton to the building. Its strength resides in its heavy walls

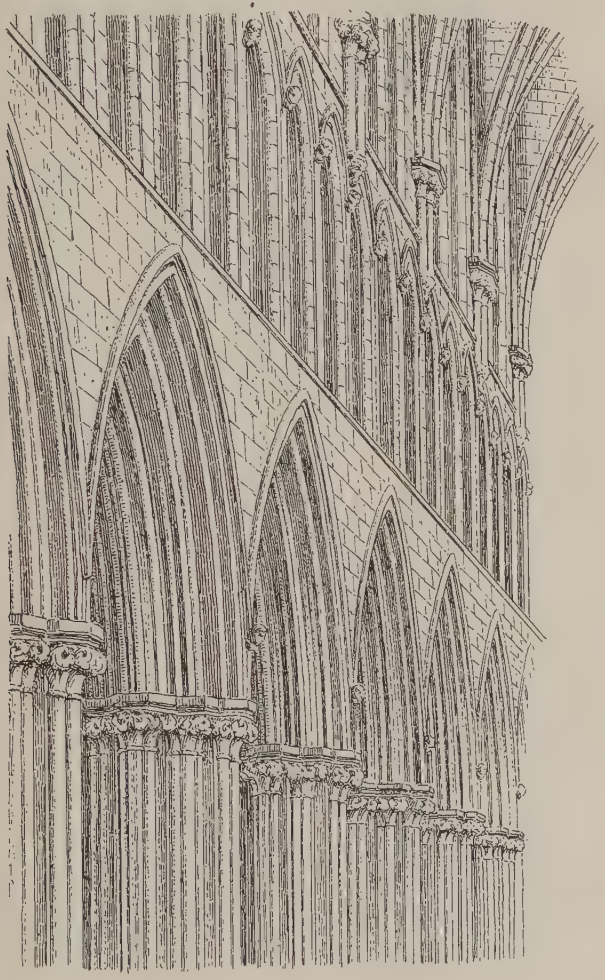

FIG. 85.

as much as does that of any Romanesque structure. I have likened Salisbury in point of structure to Durham. Wells is in some points strikingly like an even earlier Norman building—that of the Abbaye-aux-Dames at Caen. This likeness is partially illustrated by Figs. 85 and 86—

portions of the interiors of Wells and the Abbaye-aux-Dames respectively. It will be seen that the triforiums are

FIG. 86.

almost identical, both consisting of a series of narrow arched openings in heavy walls, without encompassing arches

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gathering them into groups. In both cases the imposts are continuous—that is to say, there are no capitals nor mouldings at the springing of the arches,—and even the sections and the roll mouldings on the edges of the jambs and arches are the same. If the drip-moulds were removed from the arches of Wells, the only difference between the two examples would be that the one has round and the other pointed arches; but the Abbaye-aux-Dames is not, like Wells, devoid of continuous supports. It has shafts rising from the pavement to the springing of the vaults and dividing each of the three stories into bays. It is in this important respect much more like a Gothic building. The lower piers and pier arches are, moreover, actually lighter than those of Wells, though they have fewer subdivisions, and the individual parts are therefore more massive. It may, indeed, be said that the piers of the Abbaye-aux-Dames are more like Gothic than they may at first seem, while the piers of Wells are a good deal more Romanesque than they seem. Between the buttress systems of the Abbaye-aux-Dames and Wells there is no essential difference, though the two buildings are at least a century and a half apart in date. Both have their flying buttresses concealed beneath the aisle roof, and both display only pilaster strips externally.

In external aspect the nave of Wells closely resembles this early Norman building; the difference consisting in little more than the substitution, in the openings, of pointed arches for round arches. The same is equally true of most other early English structures. The triple arches of the clerestory, the grouping of openings in the west end, and the great lanterns at the crossing of nave and transept—features which have been generally regarded as peculiarly English —are all derived from this Norman art of the Continent. So plain, indeed, is the identity of characteristics, that one has only to make the comparison in order to perceive that the early pointed architecture of England is essentially a Norman product, and that it is, at most, very imperfectly Gothic.

Few early pointed buildings in England are any more Gothic in principle than those already noticed. The choir of Ely, the choir and smaller transept of Worcester, the great transept of Lincoln, the choir of Chester, the transept

of York, which has no vault, but in place of it a wooden imitation of one, and other similar buildings, present substantially the same characteristics. Westminster Abbey is an exception, and is, after the choir of Lincoln, the most Gothic structure in England, having a complete and continuous vaulting system, including a Gothic system of buttresses.

Nor are Gothic principles carried out more fully in the later structures of the thirteenth century in England. Of these later structures one of the most famous is the Presbytery of Lincoln which dates from about 1270. Its vaults have, in addition to the full system of functional ribs, two *tiercerons* in each compartment. The ribs which span the central aisle spring from a level a little above midway between the triforium and clerestory strings, while the longitudinal rib springs from the clerestory ledge. There is, therefore, something of Gothic form in the lower portion of the vaulting conoid, which is gathered against the wall in a vertical line for several feet from the springing, and presents, accordingly, somewhat twisted surfaces. Five small and compactly grouped vaulting shafts carry the five greater ribs, but these ribs so interpenetrate at their springing as to become greatly reduced in bulk, and consequently in the numbers of their mouldings. Of these mouldings the *tierceron* is reduced to one member, the transverse rib to one and parts of two others, and the diagonal rib to two. The adjustment of the shafts to this group is peculiar. The two lateral shafts, instead of carrying each a separate rib, carry each one moulding of the same rib—namely, the diagonal; while all that remains of the transverse rib and the *tiercerons* together is carried by the central shaft. Hence, though the number of shafts corresponds to the number of great ribs in the vault, yet there is no really functional relationship between them—that is to say, each rib does not, as in French-Gothic, find its own independent support in the shaft group.

The upper parts of the vaults of this Presbytery are less like those of true Gothic form than are the lower portions. They approach more nearly to the character of simple intersecting vaults of pointed section. Their ridges are almost, if not quite level, and their surfaces are hardly at all

domed—the courses of masonry having parallel joints, and running in nearly straight lines from rib to rib. The vaulting shafts are as usual stopped upon corbels not far below the triforium string; and the larger members of the lower piers are consequently again arranged with reference

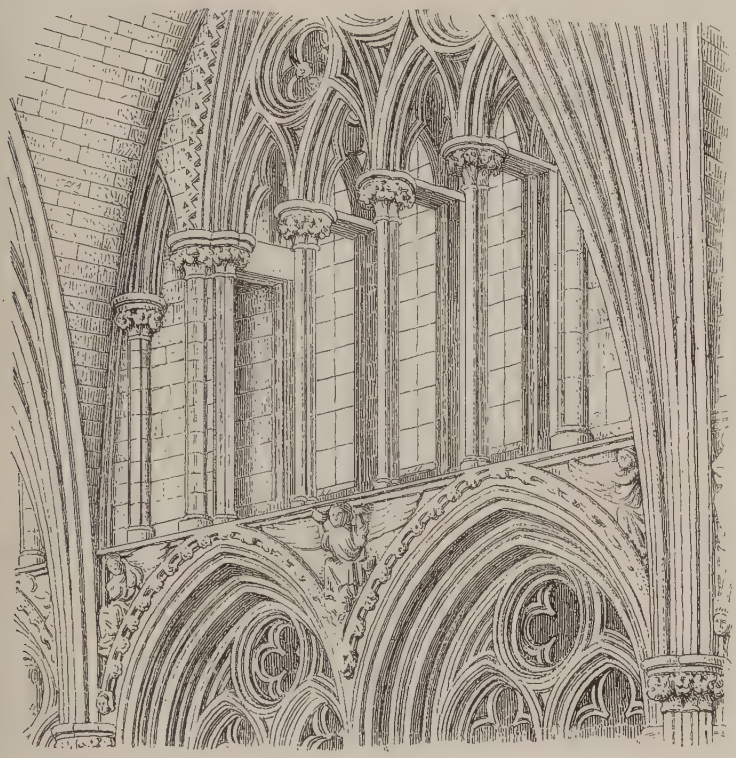

FIG. 87.

to the arch orders only, while very slender shafts are inserted between the larger ones, for which there are no corresponding members in the archivolt. Here, then, once more, as almost constantly in Anglo-Norman pointed architecture, the employment of structural members was largely governed by decorative motives without a logical regard to functional consistency.

The clerestory of the Presbytery is a variation of the earlier pointed Norman type, and consists of four open arches surmounted by tracery in each plane—the inner plane having

in addition two lesser blind arches, one in each of the wall spaces on either side. The triforium and lower arcade differ only in decorative treatment from those of the nave and choir (Fig. 87).

Externally there is no pier buttress whatever, not even a pilaster strip, either above or below the head of the flying buttress. In place of it is a broad space of wall,

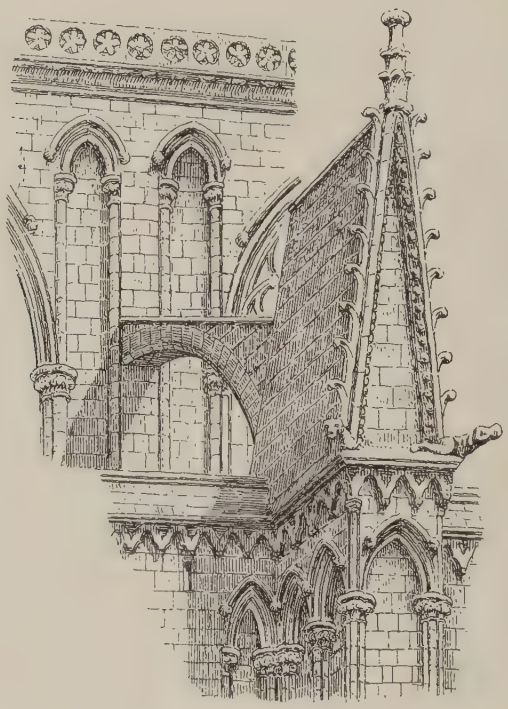

FIG. 88.

with two tall niches in its surface, between which the flying buttress is brought to bear (Fig. 88).

The nave of Lichfield, which must be nearly contemporaneous with the Presbytery of Lincoln, differs in many points from the buildings already noticed, though in structural character it is not essentially different. Its vaults exhibit the peculiarity of having no transverse ribs ; but they have *tiercerons*, longitudinal and cross *liernes*, and a surface rib in each lateral cell. The springing of the longitudinal arch

and of the great ribs is at the same level—which is that of the clerestory string,—and there is, therefore, no narrowing of the lower part of the vaulting conoid upon the line of the clerestory buttress, such as is found in true Gothic.

The vaulting shafts, however, which are but three in number, though there are six ribs to carry, start from the pavement, and are unbroken in their ascent to the springing of the vaults. Their continuity gives a degree of Gothic expression which is not very common in England at this time, though at a later period it became more frequent, as at York and Winchester.

The clerestory of Lichfield is noticeable among clerestories in England, as having in each bay but one opening which nearly fills the space beneath the longitudinal rib of the vault. The form of this opening is the peculiar one of an equilateral triangle with segmentally curved sides.

There is no need of further or more detailed consideration of the forms of piers and buttresses, for these in England are never structurally complete and never exhibit anything like consistent development. There is hardly such a thing in the country as a continuous pier, all of whose parts are functionally adjusted at once to the arcades and to the vaulting, nor am I aware of an example of an entirely logical and well-adjusted buttress system ; much less is there evidence of any experimental or inventive development of these members.

From what has already been said it will be seen that in England the mode of enclosure, in the pointed architecture of the twelfth and thirteenth centuries, is substantially the same as in the round arched Norman style. Massive walls, pierced with comparatively small openings, continue for the most part, throughout this period. The openings are usually, indeed, larger than they were in the older style, and they are perhaps more generally, and more closely grouped, so as to give a larger proportion of opening to that of wall ; but in hardly any case does the wall wholly disappear and a vast glazed opening take its place. It could not, indeed, be otherwise, for the Anglo-Norman pointed structure has no such sustaining skeleton of piers and buttresses as would render safe the entire suppression of the walls. It was not until after the middle of the thirteenth century that openings

became large enough to require dividing members and to call for the use of tracery. And when they did become so, and when tracery was employed, the opening still remained really a window through a wall. When the grouped lancets of the east end were replaced by one great mullioned and traceried opening, some truly magnificent designs were indeed produced, of which that of the Presbytery of Lincoln is perhaps the grandest; yet still are these great windows generally mere openings in walls. Rarely, if ever, in England do the rib of the vault and the archivolt of the aperture come one and the same member, as they do in Amiens Cathedral.

Such are the structural characteristics of early pointed architecture in England in so far as concerns the longitudinal bays. The east ends in this architecture are usually square, perhaps because the constructive difficulties of the apsidal form were deemed too formidable, or, perhaps, from an acquired preference derived from the widespread example of the great Cistercian churches.

Not many east ends remain in their original form; but two important ones—those of Ely and Lincoln—have come down to us. They date, respectively, from the first and from the second half of the thirteenth century, and they afford a sufficient idea of such structures generally. In both of these buildings the eastern enclosure corresponds with the internal division into a wide and high central aisle and two narrower and lower side aisles. The divisions are, in each case, marked by boldly projecting buttresses, and the central compartments are surmounted by gables which follow the lines of the timber roofs. In other respects the two examples differ considerably. That of Ely (Fig. 89) has, in its central compartment, three tiers of grouped lancets—three tall ones of equal height in the lower tier, five shorter ones of graduated heights, following the line of the arch of the vault, in the second tier, and three still shorter ones of equal height, flanked on either side by a lower blind arch, in the third tier. The lower tier embraces nearly the combined height of the ground-story and the triforium, the second tier is on the clerestory level, and the third occupies the lower portion of the gable, and lights the space above the vaults beneath the timber roof. The lateral compartments

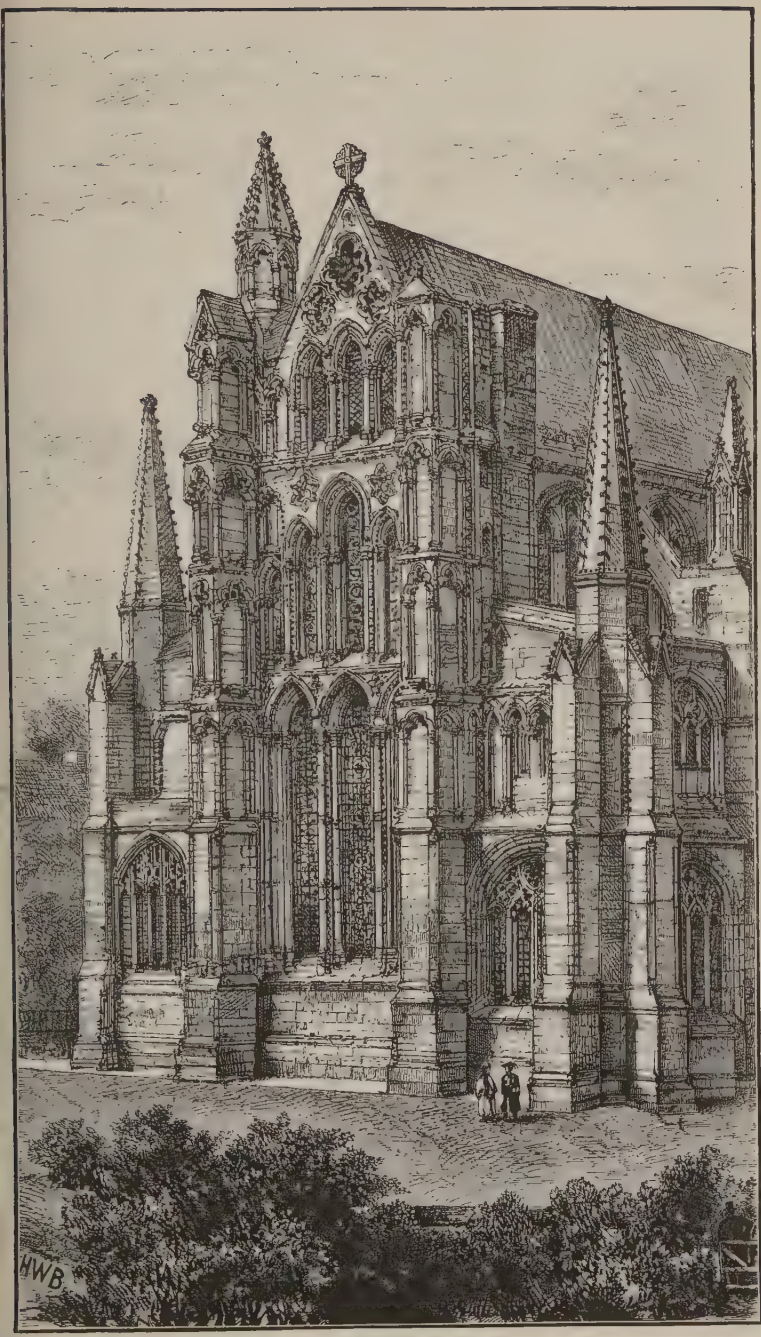

FIG. 89.

have been so remodelled that their original forms cannot be precisely determined; but if the summits of their walls corresponded with the lines of the aisle roofs, as appears probable, there is enough beside to show that it must have been one of the most beautiful façades in England.

The east end of Lincoln (Fig. 90) retains its side compartments in their original form. Their lower portions contain each one wide mullioned and traceried window, above which is a blind arcade of five arches, and over this again is a gable having no connection with the aisle roofs, but rising above them as an entirely useless and merely decorative feature. The central compartment has two great pointed openings, one above the other. The lower one of these is the great window to which I have already referred, and the second is a lesser, though still a very large window, lighting the space over the vaults.

In addition to the east ends of Ely and Lincoln, that of Salisbury, which also retains its original form, may be mentioned as affording another illustration of that want of unity and logic of design and construction which so largely characterises this architecture. In this case the walls of the three compartments, into which the façade is divided by buttresses, are carried up to an equal height, where they are surmounted by a cornice supported by a corbel table; and above this are three gables, one over the central compartment, and smaller ones over the lateral compartments. These last are, of course, merely false decorative features, the aisle roofs being far below them.

Transept ends, where there are transept aisles, are enclosed in substantially the same way as are the east ends. Where there are no transept aisles, as in the east transept of Lincoln, there are, of course, no vertical divisions in the façade. Where there is but one transept aisle, as in the west transept of the same building, there is but one such division. The transept façade has sometimes a wheel window at the clerestory level, as at Lincoln, and sometimes it has such a window in the gable, as at York and Beverley. A very beautiful early one filled with plate tracery, is that of the north arm of the west transept of Lincoln; and there is a fine one, of bar tracery, in the south transept of York; but the wheel window was never in England developed to

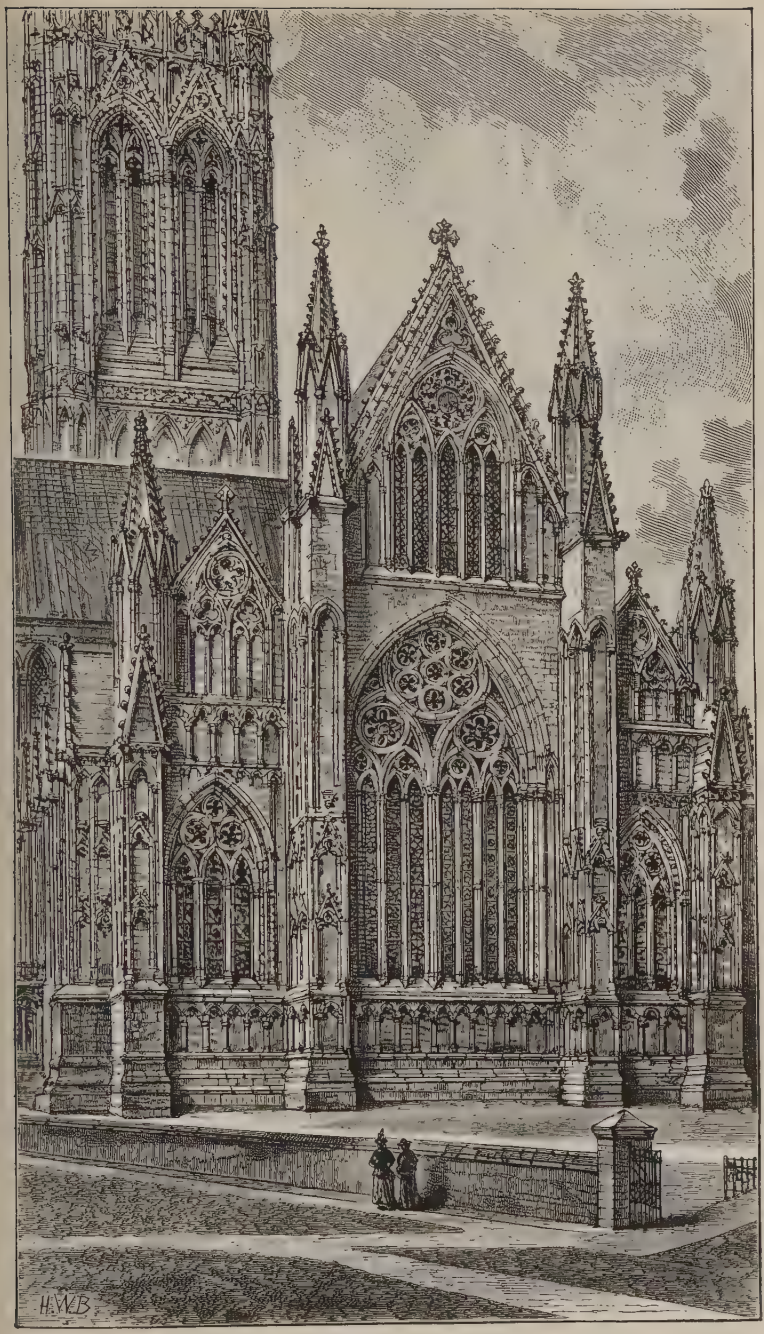

FIG. 90.

the proportions or to the magnificence that it attained across the Channel.

The western façade is in England, as a rule, both inappropriate as a termination of the building, and ill arranged as an independent architectural design. Very few early ones remain. The west façades of the greater number of the larger churches—such as York, Canterbury, Beverley, Westminster, and others—were built at later epochs than the main body of the edifices to which they are attached. The most important existing fronts of the thirteenth century are those of Lincoln, Salisbury, Wells, and Peterborough. That of Lincoln (Fig. 91) consists of a vast arcaded screen, unbroken by upright divisions, with a level cornice terminating its multiplied horizontal lines. A gable rises through the middle of this cornice, and stair turrets at each angle are crowned with conical pinnacles. A great pointed arched recess [1] in the centre reaches almost to the cornice, and is flanked by two lesser round arched recesses. In each of these recesses is a round arched doorway giving access to the nave and aisles respectively. Behind this great screen, and quite independent of it, rise two lofty square towers with angle turrets. This façade exhibits four different styles of architecture. The great recesses (except the arch of the central one) and the lower parts of the towers are early Norman, belonging to the original edifice, which was dedicated in the year 1073; the portals are very rich and beautiful late Norman insertions of about 1140; the rest of the great screen is of pointed design and was probably completed before 1235; while the upper portions of the towers are in the perpendicular style. It is thus, from an historical point of view, one of the most interesting façades in Europe, but as an architectural combination it is one of the least admirable. Of structural Gothic character it has nothing whatever, and as a termination of a three-aisled building it is far less appropriate than the Romanesque façade of the Cathedral of Pisa, whose richly arcaded design it remotely recalls. For in Pisa the façade follows the form of the building which it terminates, while at Lincoln there is no conformity of the one with the other.

Almost equally unrelated to the building is the west front

[1] The arch was originally round.

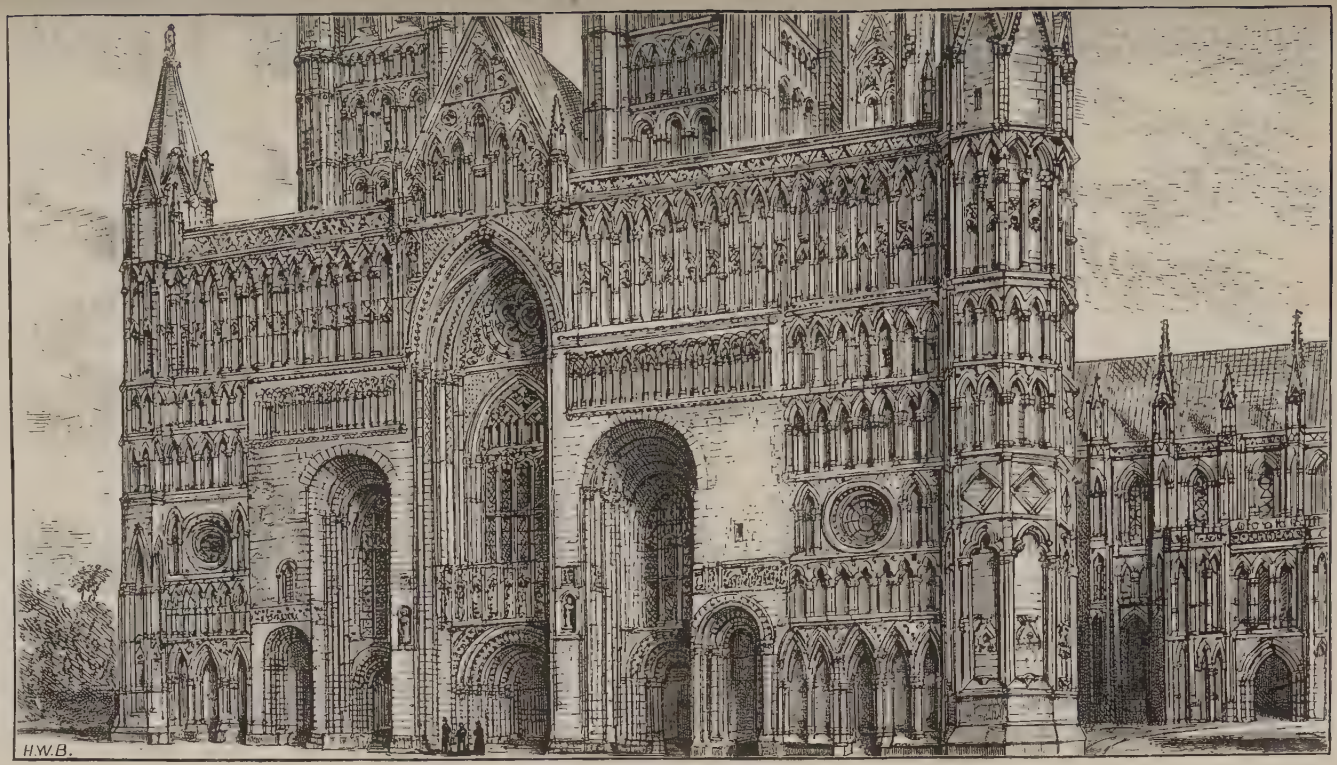

FIG. 91.

of Salisbury, which is again a mere false screen, with a level cornice cut in the middle by a gable, and with square turrets at the corners. These turrets are crowned with heavy and projecting cornices above which rise octagonal pinnacles, for which last the forms of the square substructures are in no way prepared. At the four corners of the squares, which are left uncovered by the pinnacles, are set diminutive pinnacles similar in form to the larger ones. A less constructive or graceful arrangement than this, especially when taken in connection with the projecting cornices, could hardly be devised. This façade has, however, the merit of being divided by buttresses into compartments corresponding with the nave and aisles, and hence the horizontal lines are neither so continuous nor so pronounced as at Lincoln.

A different, though still a singularly defective design is that of the façade of the Cathedral of Wells. It consists of a central portion in three compartments, divided by buttresses, with two vast towers, one on either side forming two compartments more. The central portion embraces both nave and aisles of the building, while the towers project north and south beyond the walls of the aisles. This, especially as the towers are not completed above the rest of the façade, gives a vast total width of front, for which the builders in England seem to have had a singular predilection. The screen-like character, though on account of the strongly accented vertical lines of the buttresses less pronounced here than at Lincoln, is still obvious. The upper portions of the aisle compartments are false walls rising above and masking the aisle roofs, and their level cornices of course contradict the lines of these roofs. The central compartment is surmounted by a rectangular mass of wall which has no more relation to the roof of the nave behind it than the walls of the lateral compartments have to the roofs of the aisles. The portals of English churches are in general strangely diminutive, and those of Wells are especially ineffective as features in the total design. The other openings also of this façade (with exception of three long windows in the central bay) are, like those of Lincoln and Salisbury, very small in proportion to the extent of wall. They are, in fact, little more than loopholes which, were it not for the

rich arcading that lightens the effect, would give this portion of the building very much the aspect of a fortress.

Hardly better is the west façade of Peterborough. It is again an entirely false screen rather than a front appropriate to and conformed with the building. The three vast recesses have not, as they have at Lincoln, any correspondence with the proportions of the nave and aisles which they terminate. Being of equal height, and the narrow one being in front of the wide central aisle, while the wide ones fall in front of the narrow side aisles, they wholly contradict these proportions, and they make a very unhappy architectural group as well.

Thus, as a rule, the west front in England has little approach to Gothic character. It is, on the contrary, a massive erection, whose details are largely mere surface decorations unrelated to the real structural scheme. There are exceptions, however, among which may be noticed the western façade of Ripon Cathedral, which was constructed during the first half of the thirteenth century. Here the towers are the true terminations of the aisles, and the three internal divisions are marked externally by continuous, though shallow buttresses. There is a low central portal and two lesser portals, all gathered into the central compartment, and consequently all opening into the nave. This central compartment is crowned by a gable in conformity with the form of the roof, and it is pierced by two tiers of five lancets. The design, as a whole, is therefore appropriate, and in this respect offers a rare exception among early buildings in England.

In the early pointed architecture of England western towers are less common and less imposing than those of early Gothic buildings in France. But the Norman feature of a vast tower at the crossing of nave and transept, seldom adopted by the French Gothic builders, was perpetuated in England. There is provision for such a tower in nearly every church of importance in the island; but in many cases it exists either as a mere beginning, or as it was erected at a comparatively late period in the perpendicular style, as at Worcester, Gloucester, Canterbury, York, and other churches. I do not know of any remaining completed tower of the early pointed epoch; but the truly magnificent central tower of Lincoln, dating from about the middle of

the thirteenth century, retains its original form up to the level of the cornice. It consists (Fig. 92) of three stories above the cornice of the nave; an octagonal stair turret rises against each of its four angles, whose sheer ascent gives an extremely majestic expression to the structure. The stories are finely proportioned in their heights, and the middle one, which is the first that rises clear of the nave roof, is admirably designed as a base for the bell story. In this middle story are no openings except a few very small and narrow ones like loopholes; but the walls are enriched by a blind arcade of five shafted arches. In the upper story, on each side, are two great lancets surmounted by gables, and subdivided by mullions into two lesser lancets, all having traceried heads. This tower is hardly equalled in beauty by any other in England; and it is certainly one of the grandest and most beautiful towers in Europe.

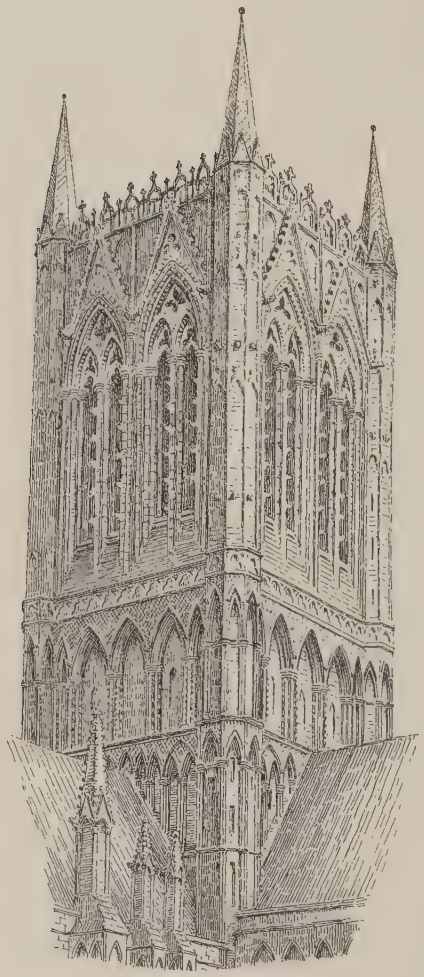

FIG. 92.

Spires were hardly constructed at all in England during the twelfth century, and on a large scale they appear to have been rarely erected during the entire early pointed period. Large existing spires, like that of Salisbury, are, for the most part, not of earlier date than the fourteenth century. On a

smaller scale a few spires remain dating from the thirteenth century, of which that of Ringstead Church, Northants, erected about the middle of the century,[1] is a good example. The management of the transition from the square plan of the tower to the octagon of the spire is, in such constructions, very admirable, and it is, I believe, peculiar to England. Instead of starting the octagon immediately from the square base, a four-sided pyramid is interposed which interpenetrates with the octagon. The design is both constructively good and artistically agreeable.

Before closing our examination of the pointed architecture of England we must notice the general plan and its relation to the elevation, in which points this architecture varies widely from that of France. Besides the difference of the rectangular east end, the Anglo-Norman church differs from the French church in usually having two transepts, one at each end of the choir. Eastward of the east transept is the presbytery, which is generally as long as the choir, and beyond this again is often a lady chapel. These parts, in addition to the long nave, give the building an enormous length, the effect of which is greatly enhanced by the comparative lowness of the elevation—a lowness which is prejudicial to good proportion, and which contrasts strikingly with the soaring proportions of the French Gothic churches. The chief impression received from the Anglo-Norman interior is that of a prolonged architectural vista; while the external aspect presents a long, low range of gabled roofs and buttressed walls, whose outlines are broken by the projecting transepts, and by the towers of the west end and of the crossing.

This great length and proportionate lowness may have resulted in some instances from chance, and in some from timidity. From chance, in the addition, at successive epochs, of parts that were not contemplated in the original projects, and from timidity, on the part of builders who were not remarkable for constructive daring, in raising and supporting wide vaults at a considerable altitude. But a predilection for length was a peculiarity of the earlier Norman builders, and this predilection may naturally have survived in their successors. The Norman nave of Winchester, for instance,

[1] According to Mr. Parker the date of this church is circa 1260.

contained twelve bays, that of St. Albans contains thirteen and that of Norwich fourteen, while in France the nave of the Cathedral of Paris, which is one of the longest, contains but ten bays, that of Chartres contains but nine, and that of Amiens but six. As to the comparative heights, it may suffice to say that the choir of Lincoln measures, from the pavement to the crowns of the vaults, about twenty-two metres, while the nave of Amiens measures forty-two. It must be said, however, that vaults in England are sometimes a little higher than those of Lincoln choir, while in France none except those of Beauvais are higher than Amiens, though almost all are much higher than those of Lincoln.

The vaulted polygonal chapter-house is a structure peculiar to England. It is usually octagonal, as at Salisbury and York. At Lincoln the plan is decagonal. The chapter-house is vaulted on a system of ribs which spring from a clustered central shaft, and from single shafts situated in the angles of the enclosing walls. What may be approximately described as a pointed annular vault, interpenetrated by pointed cells, is thus sustained. The openings in these structures have often a more Gothic character than those of the church edifice itself. At Salisbury, for instance, the whole space beneath the vault cell on each side of the polygon is taken up by the opening. The internal effect of these structures is very pleasing, but they present no principles that are materially different from those which we have already considered. The same want of constructive logic that we have noticed in the pointed architecture of England generally is still often apparent. For instance, at Salisbury the central column consists of a main body and eight attached monolithic shafts, with an octagonal abacus to its grouped capitals. Upon this abacus sixteen vaulting ribs—namely, the transverse ribs and the half-ribs which reach to the intersection of the groins of the intersecting cells—converge. The plan of the rib group at the impost is thus a sixteen-sided polygon, which does not adjust itself well to the octagonal abacus of the column ; and the consequence is that the ribs fall alternately upon a sustaining shaft and upon one side of the abacus over an intercolumniation. This structural defect is just the reverse of that which was noticed above in relation to the pier (A, Fig. 77) at the

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crossing of the choir and transept of Lincoln. In that case shafts were introduced which had nothing to support, while here are vault ribs with no shafts to carry them.

The almost total absence of vaulting in the smaller village churches of the twelfth and thirteenth centuries in England is as noticeable as is the prevalence of vaulting in the small churches of France. Such examples as St. Mary le Wigford at Lincoln, Corringham near Gainsborough in Lincolnshire, and many others, consist of nave and aisles separated by arcades of pointed arches, usually of two simply bevelled orders, supported on clustered columns, whose members are adjusted to the arch orders, and enclosed by plain walls with small splayed and pointed windows and timber roofs. They are often very charming in both internal and external aspect, but constructively they have no Gothic character.

It must now, I think, be apparent that the early pointed architecture of the Middle Ages in England is, with few exceptions, totally different in its nature from that of the same period in France; and that in constructive principle it differs little, if at all, from the Norman-Romanesque, of which it is substantially but a decorative modification. I shall, in the concluding chapter, give further reasons for supposing it to be in the main really Norman rather than English.

CHAPTER IV

POINTED CONSTRUCTION IN GERMANY, ITALY, AND SPAIN

I.—GERMANY

POINTED forms in architectural design were not adopted in Germany at so early a period as they were in England, nor was their progress so rapid after they began to be employed. In fact, so far as regards structural modifications the pointed arch had little effect here until the fully developed Gothic of France began to be imperfectly copied about the middle of the thirteenth century.

Germany possessed, in the twelfth century, a Romanesque architecture which, especially in the important buildings along the Rhine, was of a very admirable character, and with it the people were apparently content. This architecture was derived from that style of Northern Italy which had been developed under the Lombard influence out of the older round arched styles, and it was hence largely a German art. It was therefore natural that the country should be slow to yield to the influence of the Gothic movement, notwithstanding that this movement was active in its near neighbourhood and among a people with whom it had intimate relations. During the early Gothic development in France the German art of building remained wholly unchanged. Even so important an edifice as the Cathedral of Speyer, the erection of which was contemporaneous with that of the choir of the Cathedral of Paris,[1] was constructed in the almost unmodified Romanesque style. The central

[1] The existing Cathedral of Speyer was, according to Förster, begun immediately after a fire which had in 1159 destroyed an earlier edifice.

aisle of this church, for instance, is vaulted with round arched quadripartite vaults in square compartments, each compartment embracing two bays of the side aisles, in accordance with the form that had been established in Lombardy. These vaults have transverse ribs of square section, but they have no groin ribs. The piers are square in section, and have single engaged shafts which start from the pavement, and which, in the main piers, carry the transverse ribs, and in the intermediate piers carry the first order of the lower clerestory arches. In each double bay there are two large clerestory windows, the crowns of whose arches rise very little above the springing of the vaults, and thus a wide space of wall is left between them and the arch of the vault, while high up in the middle of this wall is a third but very small window. There are no triforium openings, and the aisles are lighted by small windows high in their walls. Fig. 93,[1] a geometric elevation of one bay, will illustrate the internal structure of this church. There is an apse at each end of the building—an arrangement peculiar to Germany—covered with a semi-dome; and at the crossing of the nave and transept is an octagonal dome on pendentives.

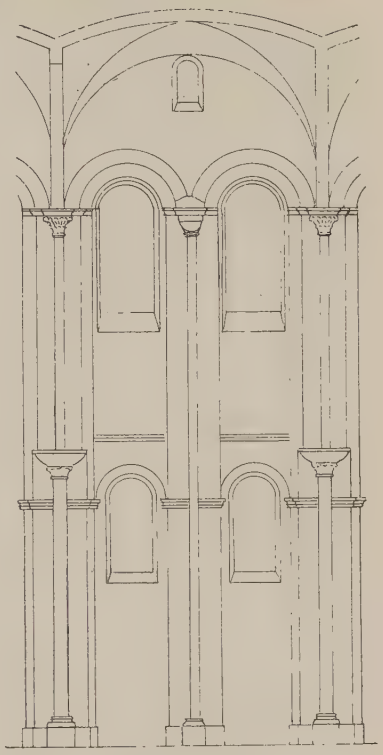

FIG. 93.

In the Cathedral of Bamberg, built near the end of the twelfth century, the vaults assume the pointed form, and are provided with light groin ribs. They are still, however, in square compartments—one bay of the nave (Fig. 94) embracing two bays of the aisles. The ground-story arches

[1] This figure, and those following as far as number 100, with exception of Fig. 98, are copied from Förster.

also are pointed, and the piers are square, with edge shafts answering in form to the moulding of the archivolt. The triforium space is a vast surface of plain wall without openings, and there is no string-course to mark the division between the triforium and the clerestory. Externally the clerestory has neither buttresses nor pilaster strips, and the windows of both aisles and clerestory are small, plain, and round arched. In plan this church, also, retains features that are almost peculiar to the German-Romanesque, namely, an apse at each end, so that the main entrance is at the side.

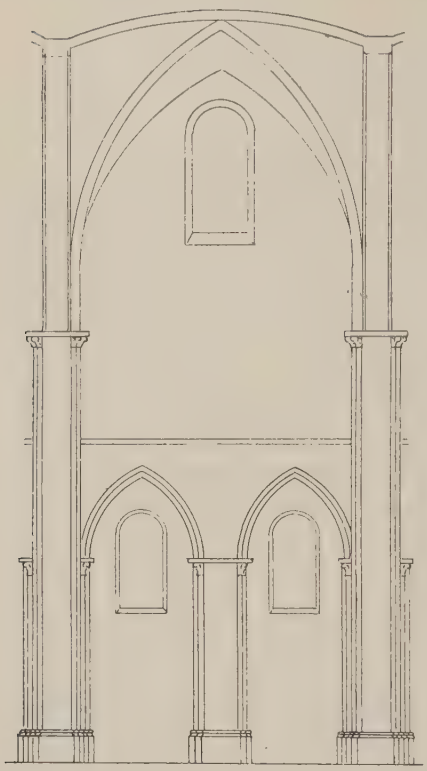

FIG. 94.

In the Cathedral of Magdeburg, begun in 1212, the pointed arch replaces the round arch throughout. This building has been considered as the first German imitation of the Gothic of France; but its likeness to French design is rather apparent than real, though its apse, in plan and elevation, bears some marked points of resemblance to the French type. The vaults of the nave are constructed on Gothic principles so far as concerns their rib systems; they are quadripartite in oblong compartments, though the piers and the transverse ribs are on the alternate principle—that is to say, they are alternately massive and slender. The building would thus seem to have been originally intended for sexpartite vaulting, or perhaps rather—since the intermediate pier has no connection with the vaulting—for quadripartite vaults in square compartments, in accordance with the usual German form. The main pier has a

continuous group of vaulting shafts rising from the pavement; but this pier is not compact and well developed—its main body being merely a strip of flat wall. In fact, the nave may be considered as separated from the aisles by plain walls, pierced on the grounds-tory by a row of wide pointed arched openings, and in the clerestory by narrow ones. There are no openings in the triforium, and externally, though there are pier buttresses of considerable projection, there are no flying buttresses. The Gothic system is thus by no means carried out in this building, though in date it is nearly contemporaneous with the Cathedral of Amiens.

The nave of the Cathedral of Limburg on the Lahn, which was consecrated in 1235, has much more structural Gothic character than either of the preceding buildings. It too, however, exhibits some inconsistencies, and retains many of the peculiarities of the German-Romanesque. The interior of this building, in the disposition of its piers, the mode of its vaulting, and the divisions of its stories, bears such strong likeness to that of the nave of Noyon as to justify the inference that its designer was directly influenced by that building. Like Noyon it has a vaulted triforium gallery and a second triforium consisting of an open-shafted arcade. All the lower openings have the pointed arch, but, as at Noyon, the clerestory openings are round arched. A peculiarity of the sexpartite vaulting of this building is that the springing of the intermediate transverse rib is situated at a higher level than that of the main ribs. This rib and the branches of the longitudinal ribs which are grouped with it are carried on three short and slender shafts, which are supported by a single shaft rising from the triforium ledge (Fig. 95). This raising of the point of springing is a logical arrangement, since the doming of the vaults brings the crowns of the intermediate ribs much higher than those of the main ribs;[1] but the single shaft, stopping on the triforium ledge, is not so logical, as I have already remarked in connection with its frequent use in England. With this exception, however, this nave is very largely Gothic in character, especially since the main pier is reinforced by

[1] In France the same result is sometimes reached, as at Paris, by stilting the intermediate rib; but it is more common to employ a more acutely pointed arch, as at Laon.

a good flying buttress of the early French form over the aisle roof, supplemented by a second one under the roof. In the aisles and in the triforium gallery the tenacity with which the German builders held on to their Romanesque traditional methods of construction is singularly marked. In these parts of the building the vaults have no Gothic rib systems — the groins having no ribs, and the transverse ribs being of the heavy Romanesque type. The external character of this edifice is very far from Gothic. The openings are few and small, and in them the round arch mingles with the pointed arch. As the nave comprises but two double bays, two of the main piers are naturally abutted by the transept and tower walls respectively, and thus but one flying buttress is necessary, that which is brought to bear upon the central main pier. There are no other buttresses of any kind on this portion of the building, either on the walls or on the towers ; but against the vaults of the apse flying buttresses, like those of the nave, are brought to bear.

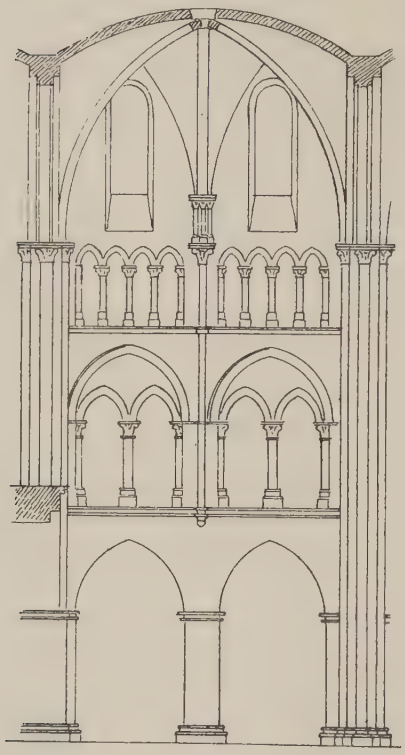

FIG. 95.

Even after the middle of the thirteenth century such a building as the Cathedral of Freiburg, which was completed in 1270, is still very imperfectly Gothic, though it has a continuous vaulting system, including a system of flying buttresses. Its vaulting conoids are not narrowed against the pier, and the pier itself is not distinctly developed above the ground-story. The triforium space is, in each bay, an unbroken wall surface, and the clerestory opening occupies but a portion of the space between the piers.

The nave of the Cathedral of Strasburg, too, begun in 1277, though more consistently Gothic in character, is far removed from Gothic in the design and adjustment of its west end, which shall be more particularly referred to a little farther on.

In the Kreuzkirche at Breslau (Fig. 96) the pointed arch is employed exclusively, though the design differs widely from French models. This edifice was completed as it now exists

FIG. 96.

before the close of the thirteenth century, and it affords a good illustration of the distinctively German taste at this period. The vaults of the nave are in square compartments, while those of the aisles, which are of equal height with the nave, are so curiously and awkwardly mixed in form as to be difficult to describe in words. They may, however, be understood by reference to the illustration (Fig. 96 *bis*), a plan of one bay as given by Förster. The vault ribs spring from corbels, and the piers are therefore entirely devoid of vaulting shafts. They are of rectangular section,

and have no capitals, the impost being continuous. The walls are plain and unbroken save by tall narrow lancets, one in each bay of the aisles. Externally there are buttresses of considerable projection which rise, with four set-offs, to the wall cornice.

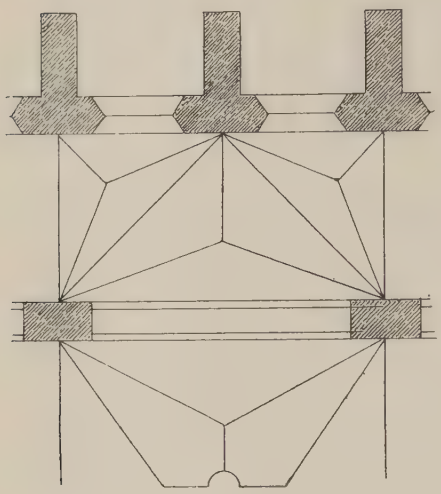

FIG. 96 *bis.*

In the chief monument of German mediæval art, the Cathedral of Cologne, the Gothic structural system is, indeed, complete. The great French models—Amiens and Beauvais, which directly prompted the erection of this building—were closely followed as regards their mechanical principles. The vaults have all the functional ribs that are peculiar to France, and their cells exhibit those twisted surfaces which generally distinguish Gothic vault construction.[1] The upright supports are functionally designed, compactly grouped, and are continuous from the pavement, while a complete and logical system of buttresses is brought to bear upon the vault thrusts. But Cologne is a late construction, the greater part of it dating from the fourteenth and subsequent centuries. Even the choir, the oldest part, was not begun till 1248, and it was not consecrated till 1322. It is in no sense a development of anything German, but is, in its structural system, strictly an importation from France. It is a copy made in a spirit, not so much of appreciation as of emulation. It shows a faithful study and an intelligent apprehension of the mechanism of Gothic, but it reveals no inventive freedom, no spontaneous exercise of native genius. In the whole range of pointed architecture in Germany there is no

[1] Mr. Fergusson, *History of Architecture in all Countries*, vol. ii. p. 62, speaking of Cologne Cathedral, says: "We find it with all the defects of French vaulting—the ribs are few and weak, the ridge undulating, the surfaces twisted, etc."

evidence of any new growth out of the borrowed forms; but just as in England some of the features of French art, modified by Anglo-Norman taste, were ingrafted upon the Norman-Romanesque without materially changing its structural character, so in Germany were the same features, modified by local taste, ingrafted upon the Romanesque of the country with little change in its structural character,—an instance like that of Cologne, where a structural system,

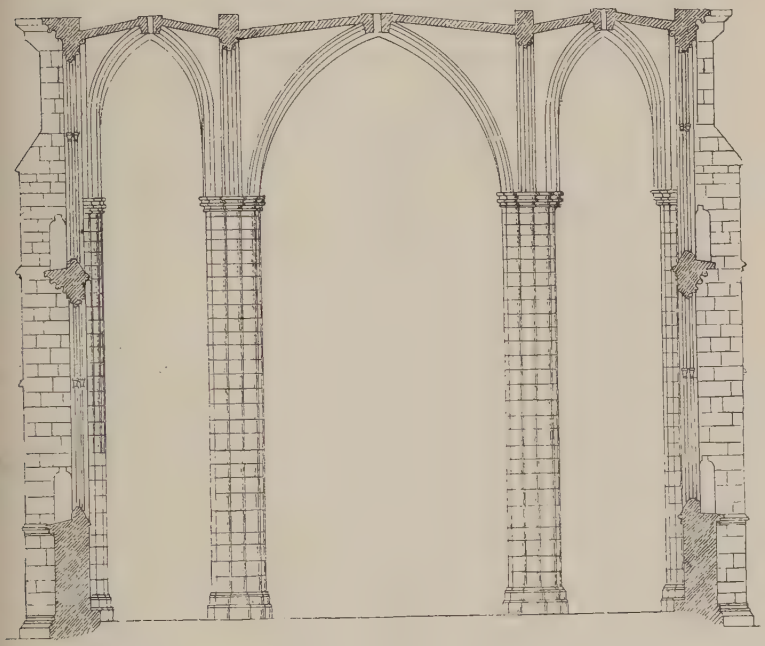

FIG. 97.

radically different from the native one, is fully carried out, being exceptional.

One class of church buildings is, however, peculiar to Germany—that, namely, in which the three aisles are carried up to an equal height, as in the Kreuzkirche at Breslau just mentioned. Of this class are the Church of St. Elizabeth at Marburg, St. Sebaldus at Nuremberg, St. Mary at Mühlhausen, and others. It would be difficult to produce a more ill-proportioned figure than the cross section (Fig. 97) of such a building presents. The only parallel to it is, I believe, that which is afforded by the grouping of the west portals of the Cathedral

of Peterborough in England. An arrangement of this kind is not to be found in France, the nearest approach to it being found in some of the churches of Southern Gaul and of Poitou, as in the Cathedral of Poitiers (Fig. 98),[1] where, though the side aisles are so high that there is no clerestory to the nave, yet they are enough lower than the nave to secure an agreeable proportional relationship of the parts.[2] In St. Elizabeth, which dates from about the middle of the

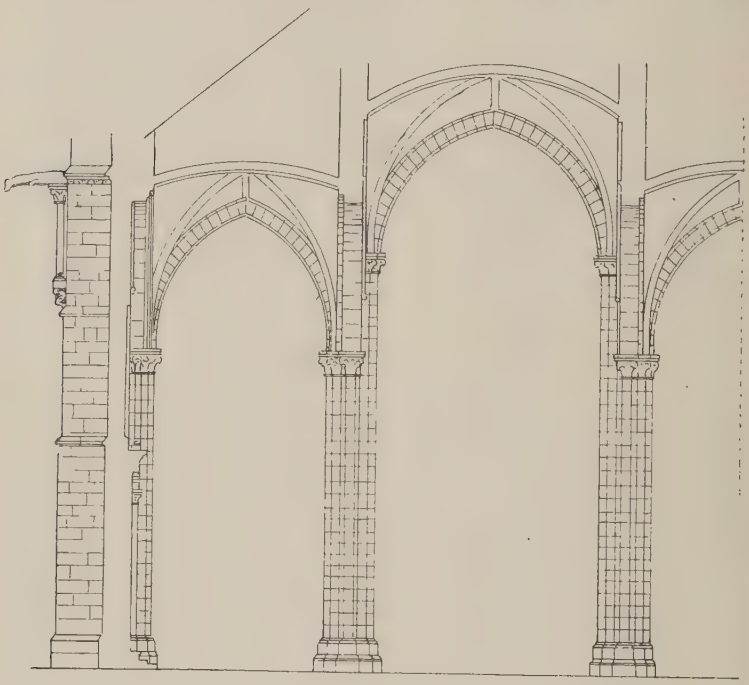

FIG. 98.

thirteenth century, though the building consists of but one story, the walls are divided externally into two stories, each of which is pierced with a row of windows. It is hardly necessary to say that such a violation of expressional integrity is distinctly opposed to Gothic principles.

In regard to façades, east ends, transept ends, and towers

[1] This figure is copied from Viollet-le-Duc.

[2] In a few exceptional instances something similar occurs, on a small scale, in the Ile-de-France—as in the village churches of Vernouillet and Feucherolles (Seine-et-Oise)—figured in M. de Bandot's *Églises de Bourgs et Villages*. Paris, 1867.

and spires in Germany there is no need of prolonged remark. The west façade retains, for the most part, its Romanesque features until after the middle of the thirteenth century, and the changes that were afterward introduced did not, save in a few exceptional cases like that of the façade of Cologne, result in anything that can be properly called Gothic design. One of the best and grandest early pointed west ends is that of the Cathedral of Limburg on the Lahn. It consists of a central compartment corresponding to the nave, flanked by square towers which terminate the aisles. The central compartment is divided into three stories, exclusive of the gable, which correspond with the internal divisions. It is a perfectly logical as well as a picturesque façade, but, notwithstanding the pointed arches that are mixed with the round ones in its openings, it has no real Gothic character. In St. Elizabeth of Marburg the same general scheme assumes a more Gothic expression by the addition of strongly-marked buttresses, pointed openings with tracery, and tall stone spires.

In the Cathedral of Strasburg the west façade has in its horizontal divisions no correspondence whatever with the building of which it is the front. It is, for the most part, a false screen, though, in so far as concerns the ground-plan, the central compartment and the towers are the true terminations of the nave and aisles respectively. Of the three stories of the central compartment the uppermost one rises from a level above the apex of the timber roof of the nave.

The west end of the Cathedral of Cologne is of fourteenth century design, and most of it is of even much later construction—the south tower, which was completed only as high as the bell story in 1437, having been, at that time, its most advanced portion. Though for the most part logical enough in general arrangement, the hard rectilinear character of its details is in striking contrast to the subtle beauty of the early French art, to which it owes every good quality that it possesses.

The east end in the German pointed style is usually apsidal, either a semicircle or a polygon, in imitation, more or less direct, of the French *chevet*, as at St. Elizabeth of Marburg and Cologne. A curious earlier form is that of

Limburg, where the choir is covered with one sexpartite vault, the eastern half of which is on a semicircular plan,

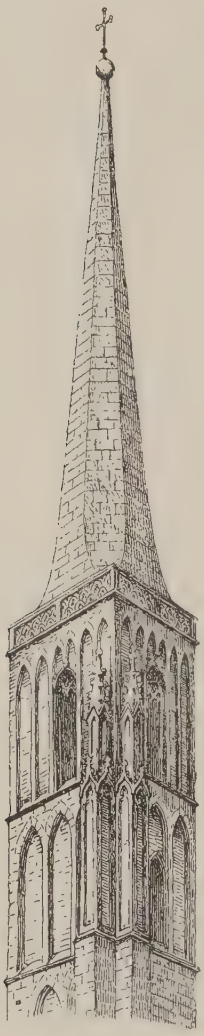

FIG. 99.

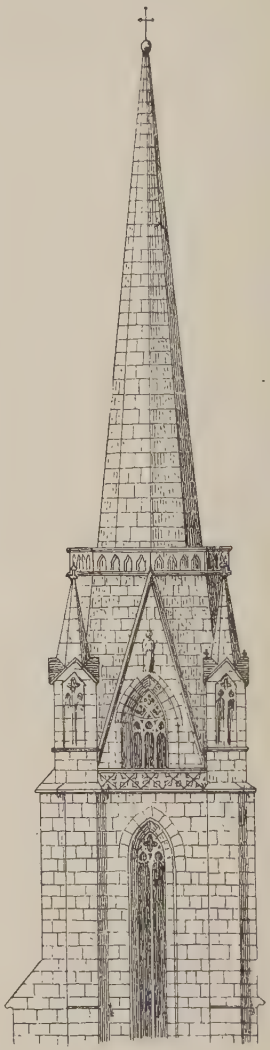

FIG. 100.

and the elevation of the hemicycle consists of three bays like the longitudinal ones, with exception of their curved plan.

Transept ends are apsidal, as at St. Elizabeth of Marburg,

or square, as at Limburg and Cologne. They present no peculiarities of structure that call for particular remark.

German west towers of pointed design differ in no important structural points from French towers, except that the earlier examples, like those of St. Elizabeth, retain larger wall spaces, and are hence more largely Romanesque.

The characteristic German spire was of very late development. It is not a roof at all, but is a mere skeleton of fanciful open stonework, as at Strasburg, Freiburg, and Cologne. Earlier stone spires in Germany are often, if not always, ill adjusted to the towers from which they rise, as at Breslau (Fig. 99), where the base is square, while the section becomes octagonal at a short distance above the base, the transition being managed as in a chamfer. Moreover, the square of the spire is too small for that of the tower, and the cornice and parapet which surmount the tower break that continuity which is essential to Gothic structure and expression. Still more unsatisfactory is the adjustment of the spires of St. Elizabeth of Marburg (Fig. 100), where the square tower is surmounted by a truncated octagonal pyramid with unequal sides, crowned by a parapet within which—its base not nearly covering the area on which it rests—rises an octagonal spire, whose sides are all set obliquely to the sides of the substructure. The pinnacles on the angles of the tower do not agree in form with the buttresses which they surmount, and the whole arrangement is thus conspicuous for abrupt transitions which are objectionable, both from a structural and from an artistic point of view.

II.—Italy

During the twelfth century Gothic architecture had no marked influence upon Italy. The Church of S. Andrea of Vercelli, which is said to have been begun in 1219, gives evidence, in its Gothic vaulting system, of transalpine influence; but it is an exceptional instance, and it was not before the middle of the thirteenth century that Italy began really to yield, in some measure, to the taste for pointed design which had become so general in the north of Europe. The monastic orders in Italy continued to take a prominent part in building for a much longer time than

north of the Alps; and in the middle of the thirteenth century the Dominicans and Franciscans were instrumental in introducing into the country a variety of pointed architecture that was chiefly derived from German sources, and which continued largely to conform to German models.

One of the earliest of their buildings is the Church of St. Francis of Assisi, which was completed in 1253. In form and principle of construction this church is very little like a Gothic edifice.[1] The building is in two stories—an upper and a lower church—the one distinct from the other. The lower church is, in fact, a crypt; though there is a second crypt, of small proportions, beneath it. St. Francis is built against a hillside, and the pavement of the lower story is, toward the north, on a level with the ground without, so that it could be conveniently lighted, and reached by a sloping path to the portal on the north side. The upper church is in one story without aisles, with a transept across the east end, and an apse of segmental form. The vaults, like those of the same period in Germany, are quadripartite in square compartments. They are provided with transverse and diagonal ribs, but are devoid of longitudinal ribs. All the vaulting arches spring from the same level, and hence the lateral cells have not the forms which secure that concentration of thrusts which distinguishes Gothic. There being no aisles, there are, of course, no piers; but the vaults are supported by shafts, five in a group, which rise against the walls, unbroken from the pavement to the springing of the arches. Narrow pointed windows, one in each bay, and each divided by a mullion, are the only openings. The apse has a Gothic vault and traceried openings; but the general character and aspect of the building, especially of the exterior, is little removed from that of a Romanesque structure.

Another example of these pointed monastic edifices is the important Church of Sta. Maria Novella in Florence, which was founded in 1278. Like St. Francis of Assisi and many other Italian churches, it has a transept across the east end, but instead of an apse it has a rectangular eastern arm which is used as the choir. The nave is provided with side aisles, and the structure is vaulted throughout. In

[1] Though M. Ramée, in his *Hist. Générale de l'Architecture*, vol. ii. p. 112, says: "Elle est dans le style ogival pur de France."

common with nearly all other so-called Italian Gothic churches the piers of Sta. Maria Novella are so disposed as to produce square vaulting compartments in the nave, and oblong ones in the aisles. Here again (and we shall

FIG. 101.

find it invariably so in Italy) all the arches of the vaults spring from the same level. The transverse and diagonal arches have strong ribs, but the longitudinal arches are without ribs. There is no triforium, and the crowns of all the arches of the pier arcades reach far above the level of the springing of the vaults. The clerestory opening

is but a small circle far up near the crown of the arch of the vault. No adequate buttress system is apparent

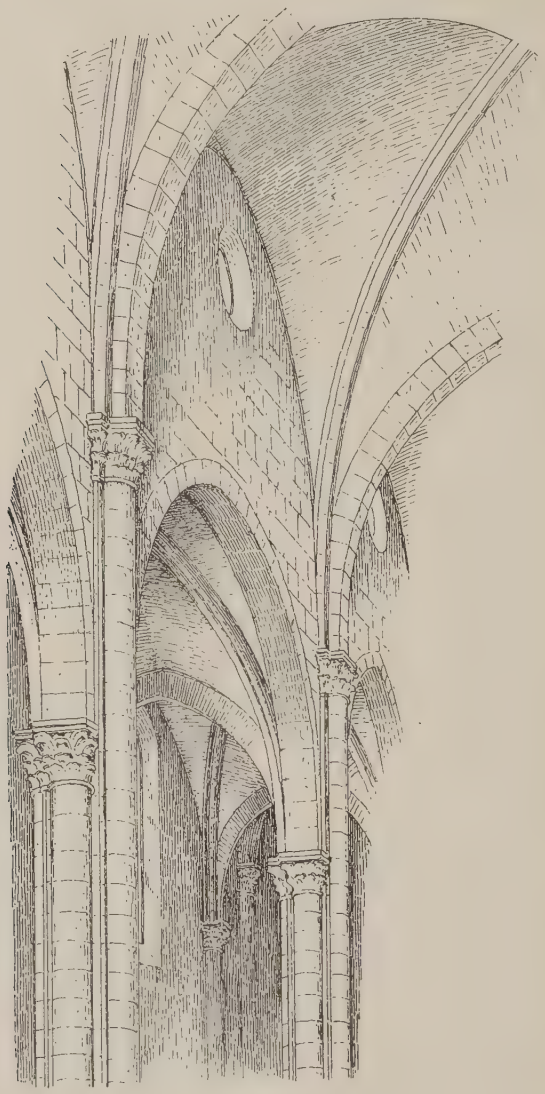

FIG. 102.

externally, and yet the vaults are not tied by iron rods as they generally are in Italy, where the buttress is never developed on the outside beyond the form of a pilaster

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strip of greater or less projection. But an examination of the structure above the vaults of the aisles reveals the existence of powerful abutments in the form of solid walls built upon the transverse ribs, and reaching up to the rafters of the timber roof (Fig. 101). A deep pilaster buttress rising against the clerestory wall, and a similar one reinforcing the wall of the aisle, augment the stability of the structure. This certainly cannot be called Gothic construction, but the hidden wall over the aisle vault is practically a flying buttress, though an exceedingly clumsy one, and there is therefore something approaching the principle of Gothic in it. I know not how far this mode of hidden abutment may be carried out in Italian pointed buildings generally, but the presence of the iron tie in many cases shows that the stone abutments, if they exist, are not adequate. It may be added that the piers of Sta. Maria Novella are light for an Italian edifice, and are thoroughly functional in form and adjustment to the superstructure (Fig. 102).

Perhaps the next Italian pointed building of importance is the Franciscan Church of Sta. Croce at Florence, which was designed towards the close of the thirteenth century. It consists in plan of a broad nave with side aisles, a transept across the east end with square eastern chapels, and a polygonal apse of five sides. The apse and chapels only are vaulted, all the rest of the structure being covered by open timber roofs. The roofs of the aisles are a series of gables, set with their ridges perpendicular to the axis of the nave. These roofs rest upon walls carried on transverse arches of stone, and as the feet of their rafters abut each other, they are not trussed. There is of course no triforium, and the pier arches reach high up into the aisle gables. The piers are simple octagonal columns of coursed masonry, with bases and capitals of corresponding form. The archivolts are of two orders of plain square section. Shallow pilasters rise in the nave, one from each of the pier capitals, to the cornice of the wall. At the level of the sills of the clerestory lights a narrow passage way, carried on corbels, runs around the whole interior. This passage way rises in a flight of steps, on each side, to pass over the great arches of the transept. The windows are tall and narrow with pointed arches, divided by mullions into two

lights, each with a circle above. There is one such window in each bay of the aisles and of the clerestory. The vault of the apse has a Gothic character, but its ribs are stopped upon corbels, below which are plain walls pierced by tall mullioned lancets, one in each bay. Well-developed buttresses rise against the external angles of this apse, and the walls between them terminate in gables. The walls of the aisles and clerestory are furnished with the usual pilaster strips. The construction of Sta. Croce is thus of the simplest kind, involving few other principles than are exemplified in an ordinary barn. With exception of its apse there is nothing Gothic about it, and were it divested of its frescoes by Giotto and Gaddi—which indeed make it one of the most impressive interiors in Europe—it would become a singularly bald and uninteresting edifice.

The cathedrals of pointed design in Italy, no less than the monastic churches, show how little of Gothic spirit, or of sympathy with Gothic design, there was in the Italian genius. Of these cathedrals Siena and Orvieto are among the most important and characteristic. They differ little, however from other vaulted pointed buildings in Italy except in general proportions, and in their peculiar western façades which shall be noticed presently.

The great crowning monument of Italian pointed architecture is the Cathedral of Florence. In this building are exhibited at once most of the merits and the defects of the Italian style. Of the structure begun by Arnolfo at the close of the thirteenth century nothing remains externally visible. And even of the interior it is doubtful whether any part of his work was left after the remodelling to which the building was subjected in the fourteenth century. In plan this building consists of a nave and aisles, with apsidal projections north and south forming a kind of transept, an eastern apse, and a vast central octagonal space surrounded by these several parts. The piers, according to the usual custom in Italy, are so disposed as to divide the nave into square compartments, and the aisles into oblong ones. In elevation there are as usual but two stories, though the height of the central vault is but about ten feet less than that of Cologne. The pier arches are enormously high, reaching nearly to the great corbelled gallery which, like the little gallery in Sta.

Croce, passes entirely around the interior just below the springing of the vaults. The piers have the section shown in Fig. 103, of which the members *a* and *b* are the supports of the transverse and diagonal ribs from which they derive their sections. The vault supports are thus complete and continuous from the pavement, and this constitutes the principal merit of the design, which in other respects is not only far from Gothic in principle, but is, in some important points, singularly illogical. The want of logic is seen, for instance, in the elevation of the piers (Fig. 104). Not only are there no true bases or capitals to these piers — they being merely banded at the bases and at various levels above with groups of mouldings, — but the most prominent groups of these mouldings, those which take most nearly the forms of capitals, are situated neither at the springing of the great arches nor at the springing of the vaults. They are, on the contrary, placed at considerable distances below these points,—the piers rising through them to the springings, where they are again merely banded by smaller and more simple groups of mouldings. The vaulting arches are all pointed, but only the transverse and diagonal arches have functional ribs, the longitudinal arches being provided with mouldings only. These arches all spring from the same level, and the forms of the vaults are hence not at all Gothic. The arch sections are square, as is usual in Italy ; and the pier arches are provided with hood moulds which break around the pier. These are, however, rather survivals of the top mouldings of the classic Roman archivolt than true hood moulds like those of the North. The openings are small everywhere. In the aisles and in the apses they are narrow lancets—one in each bay—and in the clerestory they are small circles. Notwithstanding that the building is vaulted throughout, and that the vaults are of very wide span, there are no external buttresses other than shallow pilasters. The lateral pressures are sustained by enormous strength of wall, aided by the usual iron ties. It is uncertain

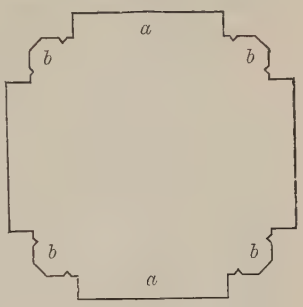

FIG. 103.

whether it was a part of Arnolfo's design to cover the octagon with a dome; but no part of the existing dome nor of the existing east end is of his construction. Domical apses, too, may have been originally intended,[1] and the existing arrangement and construction may be substantially like the original scheme, though on a much larger scale. It is perhaps needless to say that there is nothing whatever of Gothic character in any part of this east end. The enormous buttresses required to support the dome are, for the most part, internal, as in ancient Roman constructions; and the dome itself is, of course, a feature which, on account of its continuous thrusts, is constructively far removed from Gothic.

FIG. 104.

Another important, though a late example of Italian pointed design is that of S. Petronio of Bologna, which was founded in 1390. The scale of this building is gigantic, though of the original project the nave and aisles only were executed. The internal system is closely similar to that of the Cathedral of Florence. The piers have nearly the same form and section, and the bases and capitals have the same general character of mouldings rather than of bearing members. The capitals, however, have the merit of being properly placed at the springing of the arches and vaults respectively. The only other features in this building which call for special notice are the solid buttresses that rise through the aisle roofs, and are carried on walls built over the transverse ribs, as in S. Maria Novella. It is curiously in

[1] A fresco in the Spanish Chapel of S. Maria Novella, which has domical apses, has been supposed to afford an illustration of the church as it was designed by Arnolfo; but this is now considered doubtful.

keeping with the Italian constructive spirit thus to employ a massive and inert member in this situation, in place of the Gothic flying buttress.

It may be worth while to notice several smaller and earlier buildings, such as Sta. Anastasia of Verona, the Church of the Frari in Venice, and S. Martino of Lucca, which present some points of difference from the prevailing types.

The Church of Sta. Anastasia of Verona, begun in 1260, differs from the vaulted churches already noticed, in having no continuous vaulting system, its lower piers being plain round columns. It has also the peculiarity of a very small circular opening in the triforium. In the Church of the Frari at Venice, which was designed by Niccola Pisano about 1250, the ground-story piers are likewise plain round columns, from whose capitals the vaulting supports rise in form like those of Florence and S. Petronio, consisting of a broad pilaster in each pier to carry the transverse rib, and small lateral shafts for the diagonals. S. Martino of Lucca, the upper portions of which date from about 1308, is exceptional in having a fully developed triforium arcade of the Northern type. The arches of this triforium are round, however, as are also those of the pier arcade.

The typical pointed Italian façade is designed with little regard to the form of the building except in its lateral divisions, which usually answer to those of the nave and aisles. Such façades as those of Siena (Fig. 105), Orvieto, and S. Croce of Florence have steep gables over the nave and aisles respectively, while the roofs behind them are all of low pitch. More logical façades are those of St. Francis of Assisi and the Cathedral of Prato, where, in the one case, the single-aisled interior is faced by a plain wall which follows the form of the section of the building, and in the other the front corresponds with the three-aisled interior in an equally truthful manner, the lateral divisions being marked by projecting buttresses.

A peculiar and yet a characteristic façade is that of the very small Church of Sta. Maria della Spina at Pisa, where two acute gables, embracing the whole width of the church, are surmounted by a third less acute one which cuts their sloping sides in a highly awkward manner. Gables in a façade are naturally and properly understood to be the

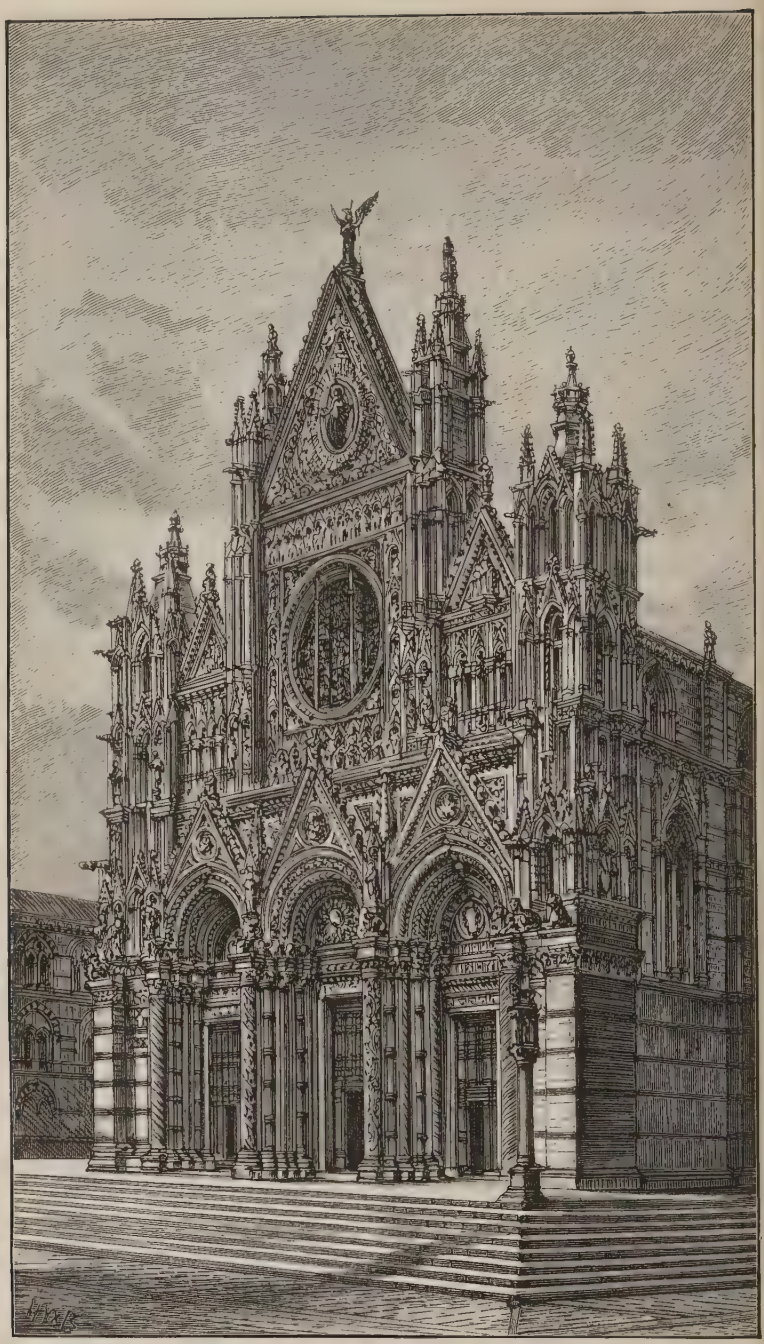

FIG. 105.

terminations of gabled roofs, and from the gables in this case it would appear that the building was divided into two aisles, each covered by a gabled roof, and that a third gabled roof rose between them, covering their inner sides—a very curious arrangement certainly, yet one that the façade plainly suggests. Attentive scrutiny, however, discloses the fact that none of these forms have any relation whatever with the roof of the building, which is a single low trussed gable of the ancient basilican type, whose outline may be traced in part behind the false gables of the façade. The building is not divided internally at all, but consists of a single broad aisle beneath the spreading roof. The rich canopied pinnacles which surmount the gables and the angle pilasters are purely decorative features set up in a thoroughly childish fashion, and the doors with flat lintels surmounted by low segmental arches have as little affiliation with Gothic design as it would be possible to devise. It is true that this façade is not a design of one epoch, but is made up of parts that were wrought at different times from 1230 to 1304.[1] It is, however, none the less a fair illustration of the Italian constructive inaptness in pointed design.

The east end of the Italian church, which is sometimes rectangular, as at Siena, but is more commonly polygonal, as in the Frari in Venice, is always a heavily walled structure, though its effect is occasionally lightened by the introduction of large windows, divided by mullions and tracery. Its roof is sometimes a portion of a polygonal dome, as at Florence, and sometimes consists of a nearly true Gothic vault, as at Sta. Croce. The apsidal aisle never occurs, and the apse is never provided with really Gothic buttresses.

Transept ends are usually square with plain walls, as in S. Maria Novella, though the apsidal form occurs, as we have seen, in the Cathedral of Florence.

The towers of the Italian pointed style do not differ in structural character from those of the Lombard-Romanesque, from which they are derived. They are rarely incorporated with the church edifice, and they never form parts of the western façades as similar towers do north of the Alps. At Prato

[1] *Les Monuments de Pise*, p. 99. Par M. Georges Rohault de Fleury. Paris, 1886.

the tower, a particularly fine one, rises through the wall of the south aisle close to the west transept; but generally, as at Florence, the tower is placed at a little distance from the west façade. In form it is a simple storied edifice, rising without set-offs to a considerable height, and crowned either with a low pyramidal roof of timber, as in the Duomo of Florence and in that of Prato, or with a stone spire, as at S. Maria Novella (Fig. 106), and at the Badia in Florence. The magnificent campanile of the Florentine Duomo, though in many respects unique, may yet be taken as characteristic of these buildings generally. It consists of five stories of finely proportioned heights, with octagonal buttresses at the angles reaching from the pavement to the coping. The openings are exquisitely proportioned with pointed arches, and are divided by mullions and tracery. These openings increase in magnitude in the successive stories, the highest one of all being of vast proportions for Italy, and one of the most beautiful windows in the world. The walls are crowned by a deep and rich cornice, carried on corbels, and continued around the buttresses. In place of the low roof which now surmounts it, a spire, probably much like that of S. Maria Novella, is said to have been originally intended. But this tower, though a consistent and beautiful structure, can hardly be called a Gothic one.

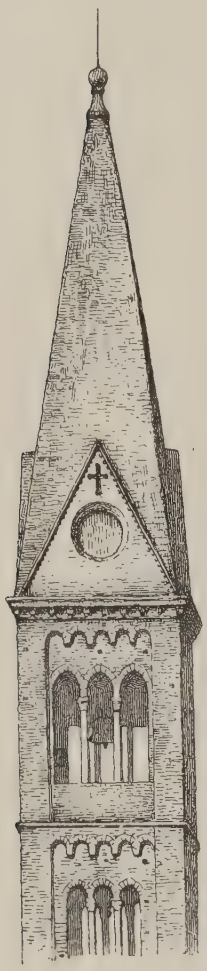

FIG. 106.

The Italian poverty of structural invention is especially marked in those towers of Northern Italy which are crowned by octagonal lanterns. Of these the tower of the Scaligeri at Verona (Fig. 107) and that of S. Andrea of Mantua are conspicuous examples. In these erections no attempt whatever is made to prepare the square base for the superposed octagons; but, on the contrary, the walls are finished

with a heavy cornice, within which the lantern rises abruptly.

The windows of Italian pointed buildings are always small, usually very small; when large enough for subdivisions, they are provided with mullions, above which are pierced tympanums, or simple geometric tracery. Both the pierced tympanum and the tracery seem to occur at all periods during the continuance of the style, and they sometimes appear together in the same building, and apparently of the same date, as in Sta. Croce of Florence, two of the aisle windows of which are shown in Fig. 108. Of the two forms that of the pierced tympanum is rather the more frequent, being variously modified by cuspings and featherings, and often very richly subdivided, as in Or San Michele of Florence.

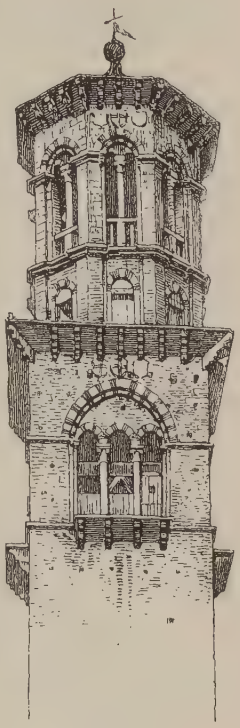

FIG. 107.

The portals of these buildings present no important peculiarities except in the placing of their sculpture, which shall be referred to further on.

There is little more of importance to notice regarding the structural principles of Italian pointed buildings. Throughout the whole length and breadth of Italy, so far as the pointed influence extended, which was, with few exceptions, not far south of Naples, the same general characteristics prevail, the same lack of real Gothic principles may be remarked. The only conspicuous exception is that of the almost purely German Cathedral of Milan, which is, however, in many respects, but a travesty of Gothic. From the time of the building of St. Francis of Assisi to that of the building of S. Petronio of Bologna, a period of nearly a century and a half had elapsed without bringing about any material departure from the structural principles of Roman antiquity. Structural invention in architecture was, as a general thing, not a gift of the Italian genius in the Middle Ages.

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After the fourteenth century the pointed style in Italy fell rapidly into disuse. This was a natural result of the Renaissance movement, which in architecture was ushered in by Brunelleschi's dome to the Cathedral of Florence, and by his design for the Church of S. Lorenzo, in which the

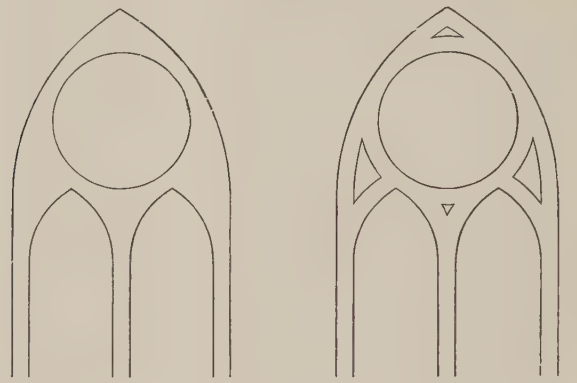

FIG. 108.

basilican scheme with the classic column and entablature was re-established. Henceforth in Italy the structural forms and decorative motives of the Roman antique were to supply the elements of architectural design ; and the arts of mediæval Christendom were to be regarded as obsolete and even barbarous.

III.—Spain

In Spain, during the second half of the twelfth century and the beginning of the thirteenth, an interesting class of buildings was erected, in which the pointed arch occurs in the vaulting and in the main arcades, but which nevertheless remains strictly Romanesque in character—that is to say, these buildings are massive structures in which there is never any Gothic concentration of vault thrusts, nor any Gothic system of buttresses. Characteristic features of these buildings are the dome on pendentives at the crossing of nave and transept and the semicircular apse vaulted with a semi-dome. In some cases, however, the dome at the crossing gives place to a quadripartite vault, like those of French Gothic churches, and the vault of the apse assumes the form that is peculiar to the French *chevet*. The piers

are, for the most part, intelligently designed, and consist of square members grouped with reference to the transverse ribs of the vaults and to the ground-story archivolts, accompanied by engaged shafts to support the sub-orders, where such occur, and sometimes to support the diagonal vaulting ribs. These piers frequently exhibit the peculiarity of coupled engaged shafts to carry a single rib or arch order. The main ribs and archivolts are of plain square section ; and are usually, though not always, of two orders. The clerestory is low with heavy walls pierced by small and usually round-arched windows. The triforium space is narrow and without openings. These features appear in the old Cathedral of Salamanca, the Cathedral of Tudela, the Abbey Church of Veruela, the Cathedral of Lérida, and many others.

At the same time another and smaller class of buildings were erected with barrel vaults, strengthened by projecting transverse ribs over their central aisles, and with open triforium galleries. Examples of this class are the Cathedral of Santiago and the Church of S. Isidoro at Leon.

It will be seen that these two classes of buildings exhibit characteristics that belong to various localities on the French side of the Pyrenees. The dome on pendentives over the crossing is characteristic of the style of Auvergne and its neighbourhood, as in the Churches of St. Stephen of Nevers, and Notre-Dame du Port at Clermont-Ferrand, as well as of the great Romanesque churches of the Rhine. The barrel vault with transverse ribs is also a feature of the style to which the Church of Notre-Dame du Port belongs. The quadripartite vaults in nearly square compartments are conspicuous in the early twelfth century architecture of Burgundy, though the rib systems with which, in Spain, these vaults are furnished belong to the style of the Ile-de-France. The composition of the pier, the absence of triforium openings, and the square arch section are, like the square compartment, chiefly Burgundian, while the coupled vaulting shafts are from Poitou, as may be seen at Fontevrault.

It thus appears that the early Christian architecture of Spain was by no means of local growth, but that it was almost wholly the result of influences derived from Gaul. And such influences may be naturally accounted for by the incoming at this period of the Cistercian order, bringing

with them, as they did into other countries, the traditions and tastes of France. Interesting and even admirable as this early architecture of Spain is, it does not, as I have said, belong to the true Gothic style. Nevertheless, certain portions of some of these buildings are Gothic to a considerable degree. Such churches as Veruela and Lérida, for instance, possess in their *chevets* and vaulting ribs much likeness to Gothic. And in some cases even the dome at the crossing — a feature which ordinarily, on account of its continuous thrusts, is far removed from Gothic principle — exhibits something of Gothic character, by being constructed on the principle of the vault of the French *chevet*, as in the Cathedral of Tarragona. These are, however, exceptional features which do not change the general character of this architecture. Gothic in principle it certainly is not, even in its internal arrangements, while externally, in the entire absence of buttress systems, it has no Gothic expression whatever; nor does it show any signs of growth. Its various elements were imported ready-made, and the style is substantially the same from beginning to end.

Nothing different appears in the Christian architecture of the country till about the second quarter of the thirteenth century, when the complete Gothic of France was taken as a model in the great Cathedrals of Burgos, Toledo, and Leon. The appearance of these buildings can be explained only on the assumption that they were, for the most part, directly copied from the nearly contemporaneous buildings of France, with more or less assistance from Frenchmen. Mr. Street supposes[1] that they were designed, and perhaps even built, by Frenchmen almost exclusively. I can, however, hardly agree with this view, because they exhibit certain peculiarities that are not strictly Gothic — peculiarities such as men not fully imbued with Gothic principles, but habituated to the modes of design that had formerly prevailed in Spain, would naturally introduce. For instance, in the choir of the Cathedral of Burgos, which was begun in 1221, one year after the commencement of Amiens, the clerestory is almost as heavily walled as that

[1] *Some Account of Gothic Architecture in Spain*, p. 422 and elsewhere. By George Edmund Street, A.R.A. London, 1869.

of a Romanesque building. The opening is merely a window not more than half-filling the space between the piers, whereas, as we have seen, in the developed Gothic

FIG. 109.

of France, the clerestory opening is an intercolumniation rather than a window in a wall. Moreover, externally, in this same building there is no pier buttress, and consequently the heads of the flying buttresses are received

directly against the face of the wall (Fig. 109)[1] just as they sometimes are in England, as in the Presbytery of Lincoln. The framework of Burgos is thus incomplete by the omission of one of the most important members, and the clerestory wall is therefore necessary to the stability of the structure. The clerestory of the inner apsidal aisle of Toledo is walled in even more completely, its openings being mere small circles, one in each bay.[2]

In the nave of this building, however, the clerestory is perfectly Gothic, since the opening fills the whole space beneath the vault. At Leon, also, according to Mr. Street, it did so originally, though it was subsequently found necessary to partially wall-up the opening, in order to strengthen the piers, which had begun to show signs of weakness.

It is true, as Mr. Street remarks,[3] that in a climate like that of Spain the large openings that are peculiar to Gothic would be unsuitable; but this is equivalent to saying that Gothic architecture is unsuitable in such a climate. And hence, as well as for other reasons, the pointed architecture of Spain is not Gothic with absolute strictness. Nevertheless, it must not only be admitted that such buildings as Burgos, Toledo, and Leon, though not of Spanish origin, are Gothic in the main, their vaults having the Gothic concentration upon the piers, the internal vaulting systems being completely developed, and their vault thrusts being met by systems of flying buttresses; but it may, I suppose, be said also that they are among the grandest edifices of the world.

A more detailed consideration of the forms of vaults, the composition of piers, the adjustment of flying buttresses, and the modes of enclosure, is unnecessary, as the Gothic of Spain in the thirteenth century follows more closely than the pointed architecture of any other country the

[1] This figure is copied from Street's *Gothic Architecture in Spain.*

[2] It is true, indeed, as we have seen in the second chapter, that walls remain, to some extent, in the clerestories of early Gothic buildings in France; but in these cases they are but survivals in a growing style which soon entirely frees itself from them. Moreover, though portions of wall still remain for a while, the pier is, at the same time, completely and independently developed, so that the wall might be removed without danger to the building. But when these Spanish churches were erected the perfect example of Gothic construction had been furnished in the French buildings, and the walls which they retain are inconsistent with developed Gothic principles.

[3] *Some Account of Gothic Architecture in Spain*, p. 112.

structural principles of France. Nor, in a style in which there is so little either of original invention or of local modification, do we need to consider in particular the forms of façades or of towers and spires. These, in so far as they belong to the original constructions, are little different from similar features in France. The west front of the Cathedral of Burgos, for example, exhibits the French scheme up as high as the foundations of the spires, except that the wall of the ground-story is unbroken by buttresses, and that above this story the wall is set back at some distance, so that the top of the lower wall forms a ledge from which, flush with its outer face, the tower buttresses rise. The spires are of later date; and are of the German open-work design like that of the spires of Freiburg and Cologne.

CHAPTER V

GOTHIC PROFILES IN FRANCE

HAVING examined the larger structural features of Gothic and other pointed architecture, we may now examine the forms of the lesser members—such as capitals, bases, string-courses, arch-sections, and tracery. The profiles which these members assume are determined largely by functional exigencies, though in their development the exercise of artistic feeling was so intimately connected with obedience to these exigencies that the elements of functional fitness and artistic expression can hardly be separated. I shall not, therefore, attempt to consider them separately.

We have already, in the course of the second chapter, had occasion to notice some of the conditions which partially determined the forms of the capitals in the great piers of Paris, Chartres, Reims, and other churches. We may now take up the further consideration of their development, more especially with regard to their profiles.

The Roman and the early Romanesque builders did not consistently recognise the mechanical function of the capital as a member by means of which a bulky load may be safely and agreeably adjusted to a slender column. In the arcades of many Roman buildings the superincumbent load at the impost does not exceed in diameter the diameter of the sustaining column, as is shown in Fig. 110, a shaft with its capital and load, from the palace of Diocletian at Spalato. In this case the capital is comparatively useless, since the load would be almost as well adjusted to the column without its interposition. But in Christian Roman buildings usually, as in the gallery of Sta. Agnese at Rome, the

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load (Fig. 111) does exceed in diameter the thickness of the column, and the capital thus becomes a structural member of great importance, providing, in its expanded upper surface, a secure bed for the load.

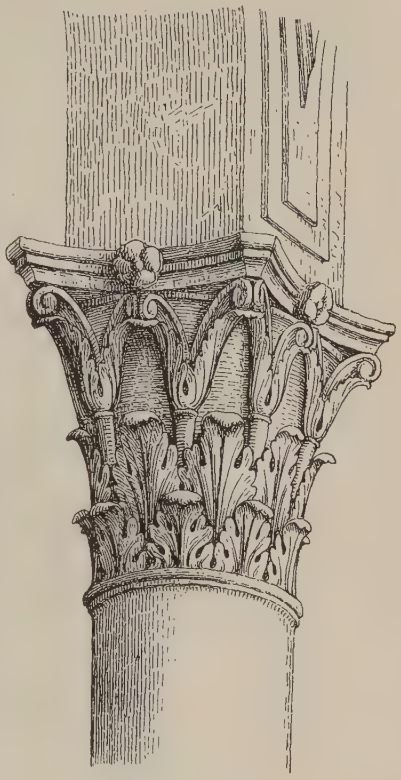

FIG. 110.

In France after the eleventh century the tendency to diminish the thickness of the column in proportion to that of its load became constant, and the development of the capital into a more and more spreading form necessarily followed. The degree of expansion given to the capital varied considerably according to circumstances. Where monolithic shafts of compact stone could be obtained, it was found that these might be made very slender, and yet be strong enough to bear all the weight that could be gathered upon a widely spreading abacus. The frank carrying out of this principle led to the production of the distinctly Gothic type of capital, which finds one of its earliest illustrations in the round portion of the choir of the Cathedral of Senlis. This capital (Fig. 112) is interesting, moreover, as showing the Gothic form already developed, while the sculptured ornamentation remains purely Romanesque. Thus these smaller members agree with the larger ones in exhibiting structural before ornamental change. The column which carries this capital is a monolith. Where the columns are not monolithic, but are built up of coursed masonry, their diameter is naturally greater in proportion to their height, and the capital is proportionately less expanded. The intermediate piers, for instance, of both the nave and the

choir of Senlis are round columns built up in courses, and are consequently much heavier, and have much less spreading capitals than the one represented in Fig. 112, as may be seen in the elevation of the bay given in Fig. 18, p. 45. The piers of the Cathedral of Paris are of the same form as the intermediate piers of Senlis, and their capitals

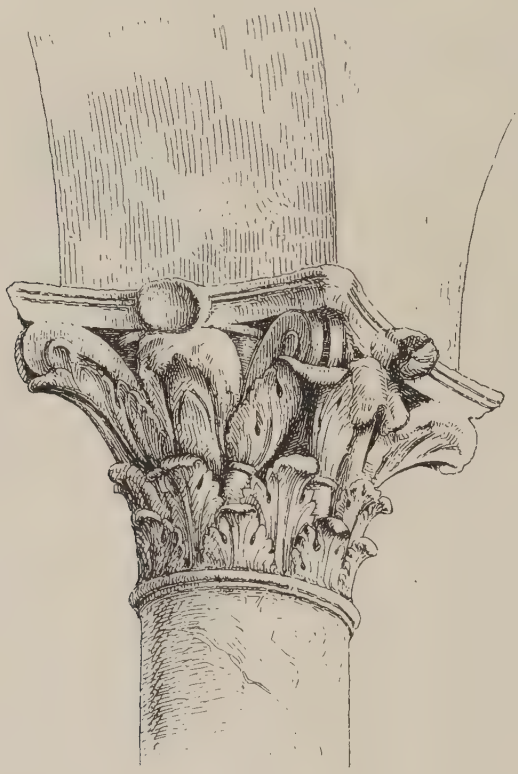

FIG. 111.

also are not much expanded. In the triforium of the choir the shafts which carry the sub-orders of the arches are comparatively slender monoliths, and their capitals (Fig. 113) are much more spreading ; while in the triforium of the nave the shafts are still more slender and the capital (Fig. 114) is very much expanded.

Another principle which apparently governs the forms of these capitals, though one that is subject to exceptions, is that the thickness of the abacus is in proportion to the

spread of the capital. Thus in Fig. 114, where the expansion of the capital reaches about its maximum, the thickness of the abacus is equal to nearly half its total height. In Fig. 113, where the capital is not so spreading, the abacus is not so

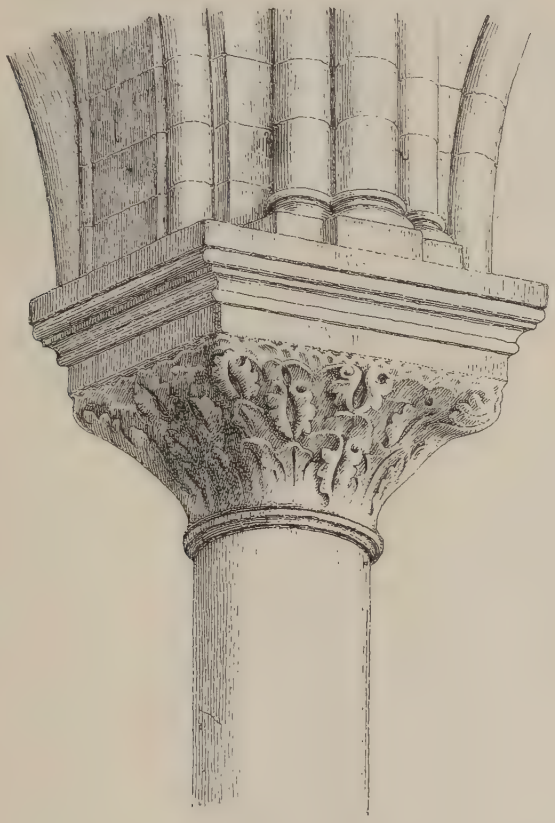

FIG. 112.

thick. The capitals of the triforium of Laon (Fig. 115) have about the same spread as those of the choir of Paris, and the thickness of their abaci is in about the same proportion. But in the massive and but slightly expanded capitals of the ground-story columns the abaci are comparatively thin.[1]

[1] M. Viollet-le-Duc, *s.v. Abaque*, says that the thickness of the abacus was made greater or less according to the height at which the capital was placed—near the ground it being thin, and higher up thicker; but this statement does not seem to be entirely correct. It is true, indeed, that the more massive and less spreading capitals, being those of the ground-story, usually have the thinner abaci.

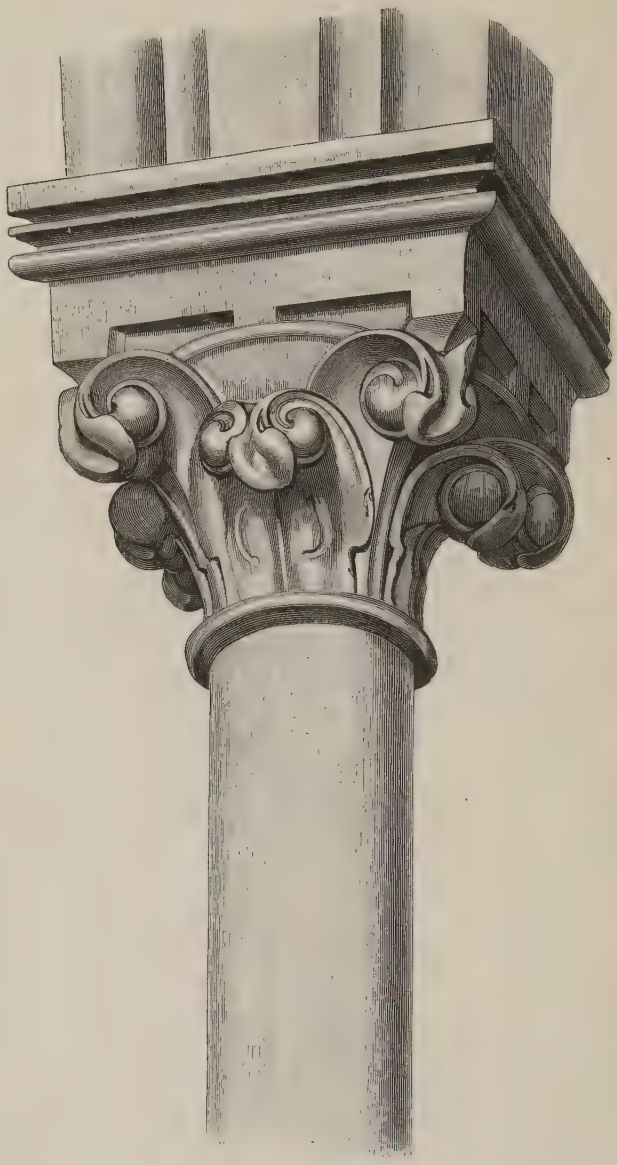

FIG. 113.

But in capitals of the same magnitude and the same form there seems to be no systematic difference in the thickness of the abacus whatever its location may be. The abaci of the capitals in the canopies of the buttresses of the façade of Paris, for instance, are, though comparatively low down, relatively as thick as those on

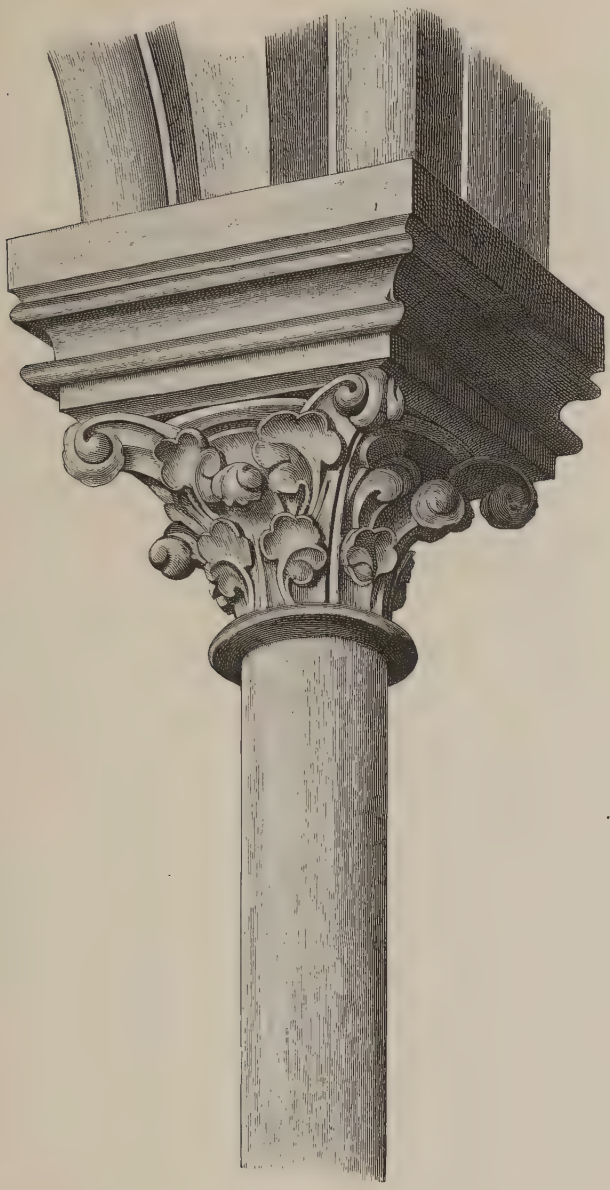

FIG. 114.

the higher level of the triforium within, while those of the pinnacles of the apse of Reims are very thin; but the thickness is in both cases in conformity with the principle stated in the text—the capitals of the buttresses of Paris being of the spreading form, while those of the pinnacles of Reims spread but little.

The constructive principle involved is, of course, that the slightly spreading capital presents no projections that are not abundantly strong for the weight with which they are charged, while those of the more spreading form would be more or less weak—in appearance, if not in reality—if the weight of their charge were not supported by a thick abacus. It must be admitted that this principle does not always strictly hold, for in the Cathedral of Senlis the spreading capital of the sanctuary has an abacus which, though thick, is not much if at all thicker in proportion than those of the less spreading capitals of the choir and nave. Senlis is, however, a very early building in which the principles of the Gothic system were not yet carried out in every detail.

FIG. 115.

In Gothic architecture the abacus and the bell are usually wrought out of one stone, and the astragal is always worked upon the capital itself instead of being worked upon the shaft according to the ancient mode. The profile of the capital thus includes both of these members.

The abacus was usually square in plan until nearly the middle of the thirteenth century, except in the case of compound capitals—like those of the great western piers of the Cathedral of Paris—where the centre portion is round. The plan of the abacus is, of course, determined by the form of the load which it has to carry. As the arch sections were, for the most part, square during the early Gothic period, the plan of the abacus was also square. But when, in the more advanced Gothic, the mouldings of the archivolt give a polygonal section, the plan of the abacus assumes a polygonal form in conformity with it, as in the

triforium of the nave of the Cathedral of Amiens. The round abacus hardly occurs in France, though it is found in Normandy, before the fourteenth century; it is, therefore, not a feature of the strictly Gothic style.

The profiles of abaci are of considerable variety, yet they are always comparatively simple. Starting from the idea of the simply bevelled stone of the eleventh century, as in St. Aignan of Senlis (Fig. 116), the mouldings of the early Gothic abacus are of slight projection, as in St. Evremont at Creil and the cathedral at Senlis (Fig. 117, *a* and *b*), and gradually become more salient, as in the triforium of the nave of Paris (*c*, *d*, *e*, and *f*, in the same figure). These mouldings are rarely, if ever, of uniform profile throughout an entire building, nor even throughout any considerable portion of a building. Though the same profile may be often repeated, yet there will usually be found several forms in the abaci of any extended arcade. Thus in the north triforium of the nave of Paris, where there are in all fourteen capitals, the four different profiles exhibited in Fig. 117 occur. Of these, counting from the transept, the profile *c* occurs in the first, second, third, fourth,

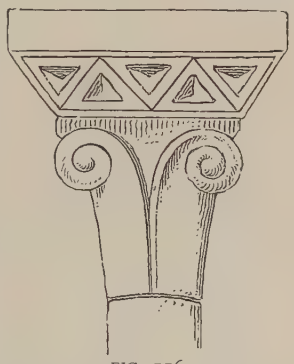

FIG. 116.

FIG. 117.

and eighth; the profile *d* in the fifth, sixth, ninth, and tenth; the profile *e* in the seventh; and the profile *f* in the eleventh, twelfth, thirteenth, and fourteenth. Where the same form is repeated there is always more or less variety in the proportions of the parts—the mouldings having evidently been chiselled with the free hand rather than with rigid mechanical precision.

The upper member of these mouldings retains the square profile till well on in the thirteenth century, when it sometimes assumes a variously curved profile, as at Amiens (Fig. 118), where A and B are profiles of abaci from the west front and from the triforium respectively.

FIG. 118.

The profile of the bell of the capital is, in Gothic design, a fine Corinthianesque curve almost without exception. Of the capitals of the ancient orders—the Doric, the Ionic, and the Corinthian—only the latter influenced to any extent the art of the Middle Ages. Derived from the Roman type, the Corinthianesque capital of the Romanesque builders was, in the best examples, an improvement upon its prototype; while in the hands of the Gothic artists it was still further modified and refined in profile. This form is one that admits of almost endless minor changes which adapt it perfectly to all the varied conditions which Gothic capitals have to meet. The circular form of the bell is adjusted to the square of the abacus by projecting crockets, which have the additional function of augmenting the strength of the angles of the abacus, as in Figs. 113 and 114. The French Gothic capital, taken as a whole, is certainly a most admirable object; but it is in the early period of the style that we must look for the finest examples. In these alone is perfect structural adaptation joined with the highest and most temperate grace. The French capitals of the latter part of the twelfth century are quite unmatched by anything of their kind that has been produced in any age.

It does not fall within the scope of this work to follow the later transformations of the Gothic capital; but it may here be remarked that in the course of the thirteenth century certain modifications of its form were made which, though not improvements on the earlier forms, were yet largely necessitated by changed conditions, and were at first productive of results that have much interest and merit. These

modifications were consequent upon the change that was wrought in the profiles of the archivolts and vault ribs from the square to the polygonal section.

Arch sections of other than square form had sometimes been employed from the earliest times. But these forms, as we shall presently see, were very simple and did not lead

FIG. 119.

to any change in the form of the abacus. But now that more complicated mouldings were being introduced, and the arch section was becoming polygonal in its general outlines, the form of the abacus was made to correspond with it. The bell remained substantially unchanged, but the absence of the far-projecting angles of the abacus removed the reason for the supporting crockets, and though crockets continued to be introduced, they now became more orna-

mental than structural features, and were often placed, not under the angles of the polygonal abacus, but under its alternate sides, as in Fig. 119, a capital from one of the chapels of the choir of Amiens. It is true that the crocket had always been largely ornamental in its purpose, and that associated with those under the corners of the abacus which were functional there had usually been others that had not any functional office, as in Fig. 113; but the general expression of the leading lines was always in sympathy with the form of the capital regarded as a working member. This expression was largely retained in the earliest and best capitals of the polygonal form, but in later examples the crocket became an extravagant and unmeaning excrescence.

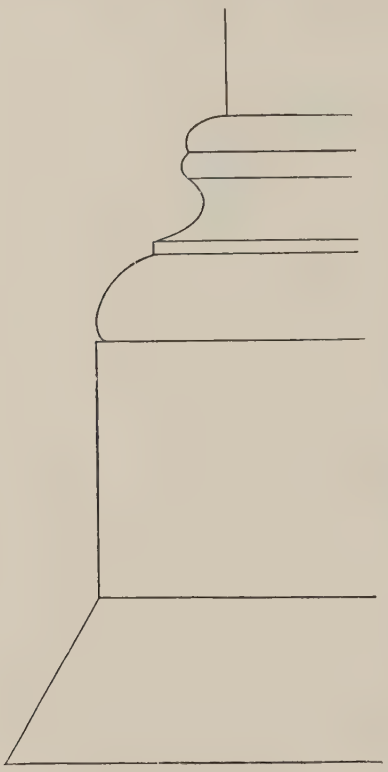

FIG. 120.

The forms of bases are hardly less interesting than those of capitals. The Gothic base, as we have before seen, is always some modification of the Attic base of antiquity; but the Gothic shaft having to carry more weight, in proportion to its size, than the classic column, and being more subject to chances of lateral displacement, required a firmer and a stronger base. The round ancient base resting on its stylobate without the interposition of a plinth, or with a plinth of shallow proportions, suited perfectly well the simple conditions of classic construction; but the Gothic base had to be both deeper and more spreading. For if a heavily charged slender column, under conditions which expose it to the chance of more or less disturbance of its equilibrium, be placed upon a thin plinth, some rupture of the plinth may follow. But by the interposition of a second stone of

considerable thickness the pressure is more diffused upon the lower member, and a footing which is assuring to the eye, as well as really secure, is obtained. Gothic bases are, therefore, in most cases composed of at least two superposed members. Very fine early examples of such bases occur in the nave of Senlis (Fig. 120), in the choir of Paris (Fig. 121), and in many other buildings. The functional

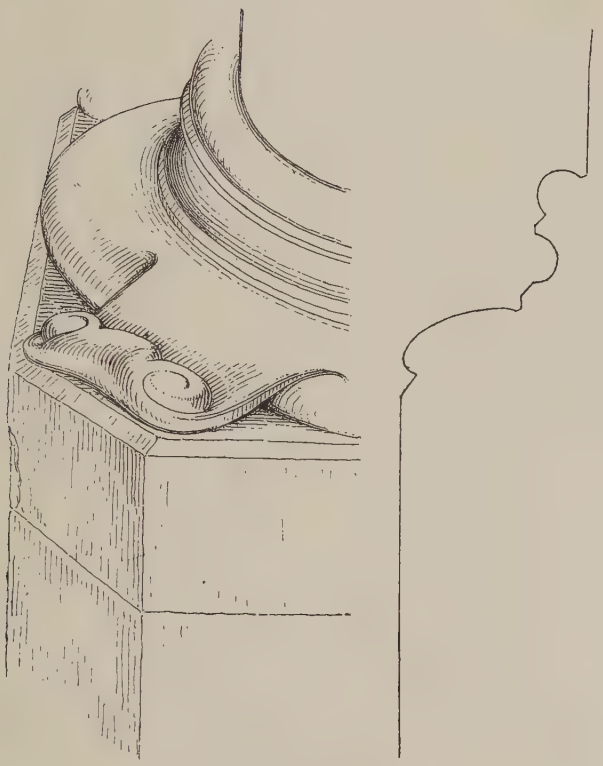

FIG. 121.

propriety of these profiles could hardly be surpassed, while for beauty of line and proportion they are unsurpassed by those of any other age or style.

A conspicuous feature of these bases is the angle spur shown in Figure 121, which occurs in a great variety of beautiful forms during the whole early Gothic period. Though it can hardly be said that this feature has a really constructive function, it nevertheless has an im-

portant functional expression, giving the lower torus an apparent grasp of the plinth, and thus adding to the appearance of stability as well as to the variety and grace of the member.

FIG. 122.

The base, like the capital, is made more spreading in proportion as the shaft is smaller; and the bases of the slender shafts of triforiums and other small arcades are often among the most exquisite objects which the genius of the Gothic artists produced. Of such bases none are finer than those of the triforium of the nave of the Cathedral of Paris, of which Fig. 122 is a profile, and Fig. 123 a perspective view. It will be noticed that the angle spur on the nearest corner (unhappily broken) differs from those on the other corners, and affords one of the many instances of the variety which characterises the spirit of Gothic design.

Early in the thirteenth century the plinth was diminished in magnitude, so that the lower torus overhung its sides, and

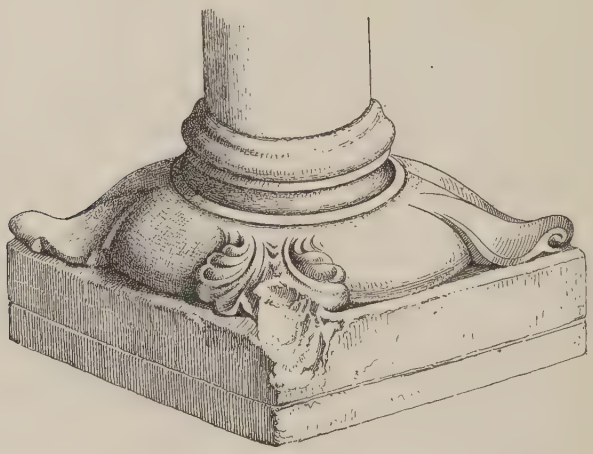

FIG. 123.

the corners were sometimes cut away, as in Fig. 124, a small base from the choir of Soissons; and sometimes the plinth was wrought into the form of an octagon, as in the engaged

shafts of the westernmost piers of Paris (Fig. 125). In these

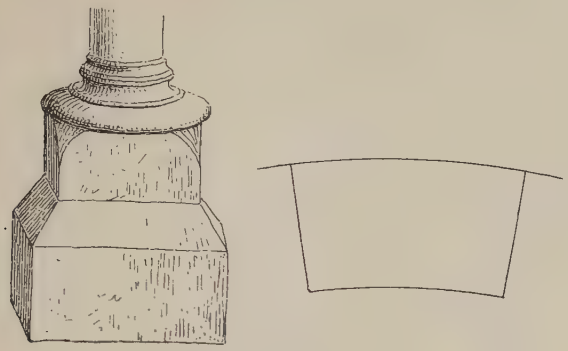

FIG. 124.

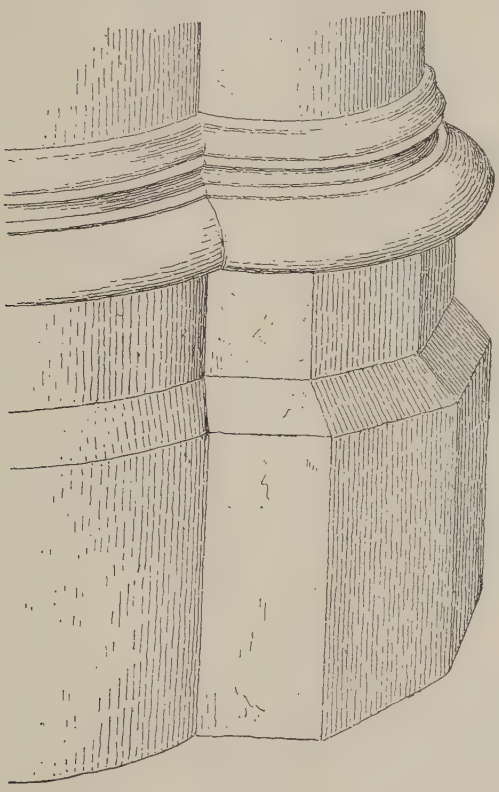

FIG. 125.

cases the angle spur necessarily disappears, and with it the finest form of Gothic base.

The development of the profiles of string-courses in France constitutes one of the most interesting branches of our subject. The string-courses of the eleventh century were

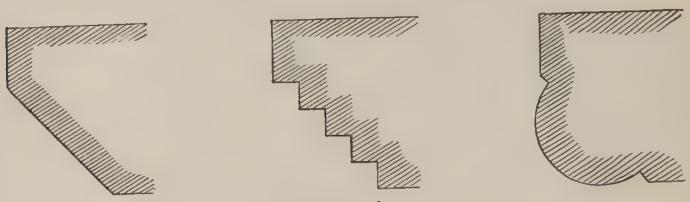

FIG. 126.

always simple, and nearly always retained the flat upper surface that had been characteristic of classic mouldings, being either bevelled or very simply moulded beneath. The profiles (Fig. 126) from the small Church of Nogens-les-

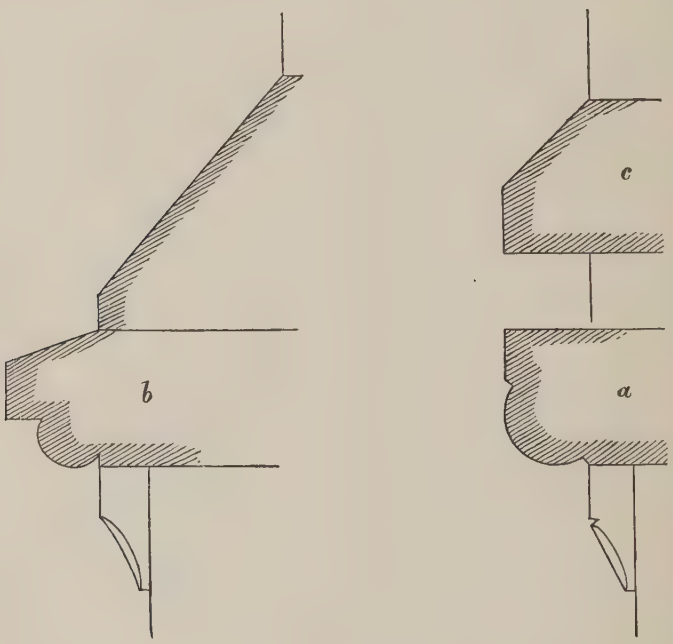

FIG. 127.

Vierges, near Senlis, sufficiently illustrate their character. In the earliest transitional buildings the same forms were retained, as at *a*, Fig. 127, a profile from St. Evremont at Creil, where the string is carried on corbels. But the early Gothic

builders soon perceived that this form of moulding was not suited to the stormy Northern climate. They saw that the flat upper surface, by affording lodgment for snows, and by causing an incessant spattering against the walls in times of rain,[1] was objectionable and must be avoided. Accordingly on the exterior of the choir of the Cathedral of Senlis the profile *b*, Fig. 127, was employed,[2] in which, to the profile *a*, of St. Evremont, a steep slope was added, and the flat upper surface was done away with. This must be one of the very first instances of the steeply sloping form; and it is, perhaps, the first step in the development of the distinctively Gothic drip-moulding. It is true that the sloping upper surface was not altogether unknown before this time. It occurs, for instance, on the buttresses of the Church of Morienval, as at *c*, Fig. 127; but before the middle of the twelfth century it is exceptional, and is never developed to anything like the extent that is exhibited in the profile from Senlis.

Early in the thirteenth century great additional changes were made in the profile of the string—changes by which it was gradually brought to the highest degree of perfection, both functional and artistic. One important function of the string-course is to prevent excessive washing of the walls and other parts of a façade by heavy rains. In order effectually to do this it must be so formed as to throw off water quickly and completely. The form *b* of Senlis, though much better than the form *a* of St. Evremont, is still very imperfectly adapted to this function. For over such a moulding a great deal of water may trickle backwards and be conducted upon the walls beneath, there being nothing to absolutely cut it off. But the improved form of the thirteenth century (Fig. 128, the profile of the

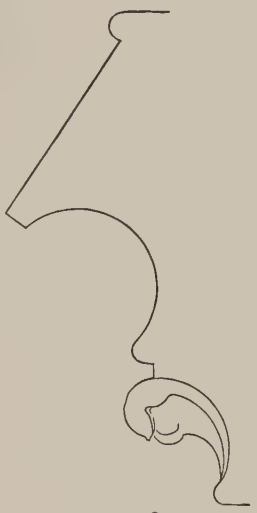

FIG. 128.

[1] See Viollet-le-Duc, *s.v. Bandeau*, p. 105.

[2] This string is not now visible from the exterior, it having been removed, in the course of subsequent alterations, from those portions of the wall which are still exposed to view. But in the space over the vaults of the more recently constructed chapels on the south side of the choir, east of the old sacristy, portions of it still remain.

cornice of the Cathedral of Paris) is admirably adapted to shed water quickly and thoroughly. In this profile we have the typical form of the Gothic drip-moulding, in which the steeply sloping upper surface is associated with a deeply undercut hollow, the salient edge between the two effectually cutting off the drip and preventing any backward movement of the water over the lower surfaces of the moulding, and thence upon the wall beneath.

Towards the end of the twelfth century the sloping surface was sometimes given to the upper member of interior strings, whether in a spirit of conformity with the changed form that had been adopted in outside mouldings, or for other reasons, it is, of course, impossible wholly to determine. Perhaps the earliest instance of an interior moulding of this form is that of the triforium string of the nave of the Cathedral of Paris (Fig. 129). The slope has not, of course, the same *raison d'être* here that it has when the moulding is exposed to the weather; but it still is not altogether without reason, for the projecting edge of the flat-topped moulding hides a considerable portion of the members which come immediately above it,[1] as shown in Fig. 130, where the portion *b c* of the superstructure is concealed from the eye at *a*. Whereas, if from the point *c*, the moulding is sloped off so as to bring its surface nearly parallel with the usual line of vision, as in the triforium string of Paris, nothing is concealed; but this makes the profile a little too much like an exterior drip-mould to permanently satisfy the nicely discriminating sense of the Gothic builders. And hence, in the nave of Amiens, the triforium string is managed in a different way. The principal members that are apt to be cut off from view by the projecting moulding are the bases of the shafts of the

FIG. 129.

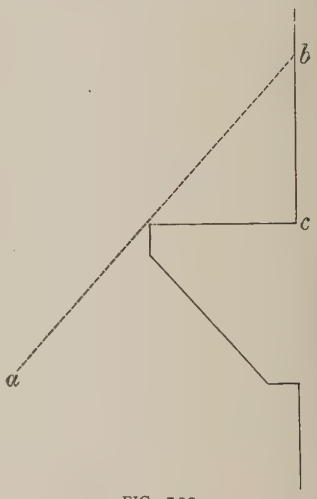

FIG. 130.

[1] See Viollet-le-Duc, *s.v. Bandeau*, p. 105.

triforium arcade. In the nave of Paris these bases are quite out of sight from the pavement, notwithstanding the slope that is given to the string-course. This is, however, largely owing to the fact that they are very low and spreading, and could hardly be better seen if the string were entirely removed. At Amiens, however, both string and bases are better managed. The string here is in two courses,[1] the lower member of which (Fig. 131) reassumes the earlier flat-topped profile, but the upper member is sloped so as to reveal the bases of the shafts to one looking from below along a more steeply inclined line of vision than would otherwise show them. But owing to their great height above the pavement these bases would still be largely hidden were they not raised on stilted plinths, which give them a very awkward appearance when viewed from their own level, but which, when foreshortened as they are to the eye viewing them from below, become entirely agreeable in form. In this string profile the character of the drip-mould is avoided by the setting of the upper member at a little distance back from the edge of the lower one, and by the avoidance of undercutting in the hollow beneath. Thus in the ideal Gothic, which the nave of Amiens may be taken to typify, there is a difference founded in reason between internal and external string profiles.

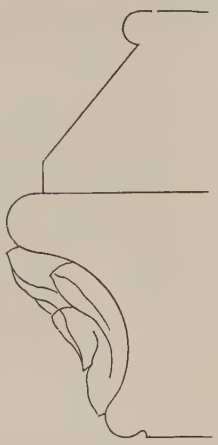

FIG. 131.

It may be remarked in passing that the true Gothic cornice is never supported by a corbel table—the form of the lower member giving a continuous support to those more projecting. But in Norman pointed design, as in the Cathedral of Rouen, it frequently appears.

In the sections of vault ribs and archivolts there were not the same functional exigencies to provide for; but in architecture the exigencies of the eye are hardly less imper-

[1] In strictness, perhaps, the lower member only is the real string. In fact, a string-course can hardly with propriety be said to consist of more than one course. Yet the upper member here occupies the same place as the string of Paris, and its association with the lower member is such that the two become practically one. The lower member alone, however, is visible from the pavement.

ative than those of a mechanical nature. And it will be found on examination that the requirements of the eye are admirably felt and skilfully met in these arch mouldings.

The characteristic forms were developed early, and little material change was made during the period through which

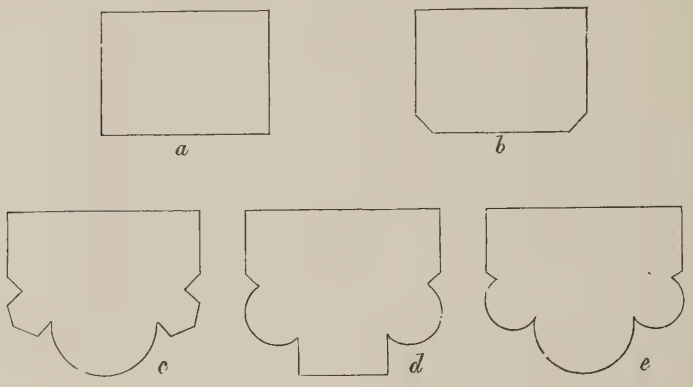

FIG. 132.

the style continued in its integrity. The square transverse arches of Romanesque vaults, like those of Poissy (*a*, Fig. 132), were heavy in appearance, and were little improved by the chamfer that was sometimes given them, as in the profile *b*, in the same figure, from Morienval. In the apsidal aisle of St. Martin des Champs at Paris some interesting examples occur, in which the sections differ one from another, as at *c*, *d*, and *e*. These are apparently so many experiments made

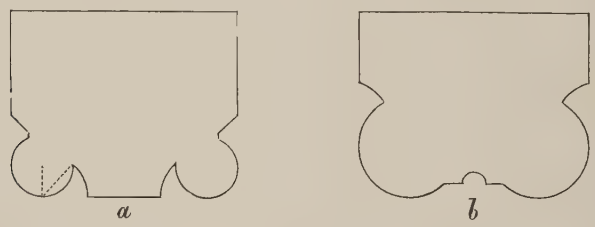

FIG. 133.

with the object of lightening the effect of these heavy ribs and of producing profiles which should be more varied and agreeable to the eye. In the transverse ribs of St. Denis a vast improvement was made, and one of the most characteristic Gothic profiles was fully established. The section *a*,

Fig. 133, square in general outline, has its edges softened by roll mouldings, and the profile is further developed by curving the line from the roll out to the soffit. This curve is struck from a centre which is obtained by letting fall a vertical line from the centre of the roll to its circumference, as shown in the figure. The line from the roll to the upright face of the arch is also inclined to that face instead of being at right angles with it, as it usually was in early profiles, and thus the flat surfaces are greatly lessened, and the effect of the whole is materially lightened.

The diagonal ribs were at first of a different profile. In the apse of Morienval they were simple three-quarter rounds, as at *a*, Fig. 134. In St. Denis the form was changed to that shown at *b* in the same figure; while at

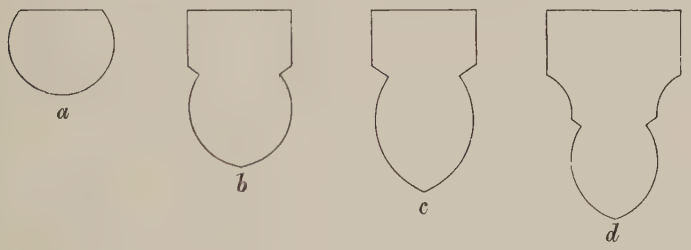

FIG. 134.

Senlis this form was made more pleasing, and the rib was at the same time made stronger, by bringing the curves together in a more acute point, and by separating the two members of the rib by a sunk fillet, as at *c*. A defect[1] which resulted from the association of this form of the diagonal with the form *a*, Fig. 133, of the transverse rib, as at St. Denis, was that the round member of the one was heavier than the round members of the other. Whereas, for good proportion—since the diagonals are lighter than the transverse ribs,—it ought to be just the other way, or certainly the rounds of the transverse rib ought to be at least equal in the magnitude to the round of the diagonal.

At Paris this defect was avoided by giving the same profile—that of *a*, Fig. 133—to both diagonals and transverse ribs. The round mouldings of the smaller ribs were thus naturally made smaller than those of the larger ones, and

[1] See Viollet-le-Duc, *s.v. Profil*, p. 506.

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good proportion was secured. At Laon the ill proportion exhibited by St. Denis was partially avoided by the employment of the profile *b*, Fig. 133, for the transverse rib, and the profile *d*, Fig. 134, for the diagonal; but the result is very imperfect. The diagonals are still disproportionately heavy. In the apsidal chapels of Senlis the profile *c*, Fig. 134, of the diagonals is associated with the profile, Fig. 135, for the transverse ribs. But though this tranverse rib, by its great lower round, secures proportion, it is a comparatively clumsy and inelegant form, and was not much employed after the middle of the twelfth century.

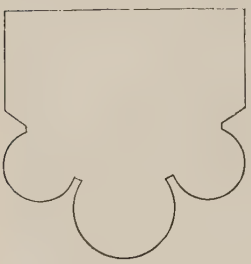


FIG. 135.

At Amiens the rib loses the square section by the simple addition of a larger round member to its under side, as at *a*, Fig. 136; and this may be taken as the perfected Gothic vault rib. The profile is admirable both functionally and artistically. The added member augments the strength to bear downward pressure, which is the chief pressure that the rib has to sustain, and makes it safe materially to reduce the width. From this results great lightness of effect, which

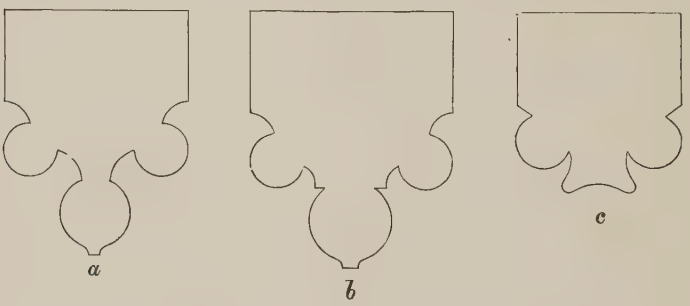


FIG. 136.

is further increased by the deep hollows that separate the round members. A fine harmony of parts is secured by the similarity of rounds and hollows, a subtle proportionate relationship by their varied magnitudes, and effective contrasts by the sharp edges of the fillet on the face of the lower round and the projecting and re-entering angles above. On such a moulding the light brings out an

exquisite effect of varied half shades, which are admirably set off by the telling darks of the deeper recesses.

At Amiens this profile is employed for both transverse and diagonal ribs; and these ribs being of different magnitudes, and the parts of each being of appropriate scale, good proportion is established in the total effect, as it is with the different profile in the Cathedral of Paris.

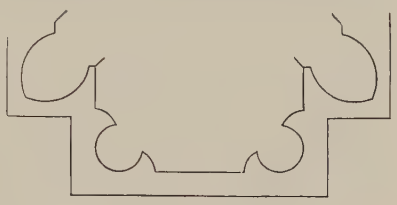


FIG. 137.

The rib profile of Amiens was widely adopted, and was not materially altered during the best period of Gothic art, though in its proportions and in minor details it varied in different buildings. The profile *b*, Fig. 136, from the Cathedral of Beauvais, for instance, illustrates one of these variations. A comparatively unusual and certainly not a graceful modification of the square section is that shown at *c*, Fig. 136, from the small Church of Villeneuve sur Verberie (Oise). From about 1225 the square section fell into disuse in vault ribs, though it was still employed in the great ground-story arcades, as at Amiens and Beauvais.

The form of the Amiens rib led to a corresponding adjustment of the supporting capitals. When, in early Gothic vaults, the diagonal ribs had been of the section shown at *c*, Fig. 134, the arrangement of the sustaining abaci was that shown in Fig. 137, from the triforium of Senlis. With the employment of the square section for all the ribs the arrangement became like that in the Cathedral of Paris, Fig. 22, p. 56. But with the new rib profile of Amiens the lateral abaci were again, as at Senlis, set even with the wall, while the central one assumed the diagonal position, as in Fig. 138.

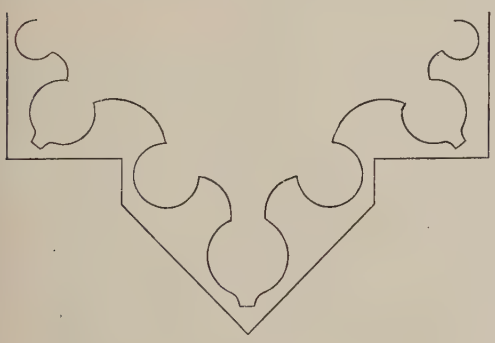


FIG. 138.

The only remaining members whose profiles call for examination are mullions and tracery. These are very simple in outline. The earliest form of mullion—*a*, Fig. 139, from St. Leu d'Esserent[1]—is a plain column of stone simply bevelled both outside and inside. This form is very appropriate in connection with the plain pierced tympanum of St. Leu; but in connection with true tracery, and as a part of an open framework, whose function is to support the glass of an opening through which as much light as possible must be allowed to pass, it is not a good form. The strain upon a mullion is in one direction only—that which is exerted by

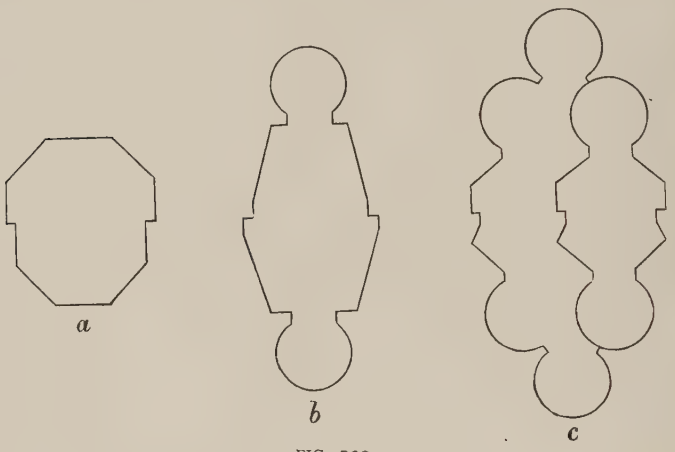


FIG. 139.

the force of winds pressing inwards,—it accordingly requires to be deep in this direction. But in order that it may as little as possible obstruct the passage of light, it ought to be as narrow as it consistently may. In fact, the conditions which it has to meet are substantially the same as those which have determined the forms of the members of an ordinary window sash. These conditions were fully recognised by the designer of the tracery of the apsidal openings of the Cathedral of Reims, and the mullion section *b*, Fig. 139, from those openings,[2] established the typical Gothic form, the principal modifications of which were such only as the exigencies of more complex tracery called for. The

[1] This profile was drawn by eye, and is only approximately correct.
[2] The profiles *b* and *c* in this figure are taken from Viollet-le-Duc.

openings of Reims have but one mullion each, and all the tracery that branches out of it has the same section. But in the great openings of the clerestory of Amiens there are three mullions, the central one of which naturally requires to be stronger than the others, and its section is, as shown at *c*, Fig. 139, an amplification of the profile of the lateral mullions, whose section is given within the larger one. The three round members of the central mullion are carried out in the main tracery bars which branch from it, while the single round of the smaller mullions suffices for the tracery to which they give origin. There was little change wrought in this profile until, in the declining Gothic, sharp and multiplied arrises took the place of the rounds.

We have now examined the most characteristic profiles of the several members in which mouldings occur. The variations in proportion, in number of parts, and in the character of curves, are very great, no two profiles being ever quite the same, and yet, during the best period of Gothic, the leading types are few and simple, as well as rational and beautiful.

CHAPTER VI

PROFILES OF THE TWELFTH AND THIRTEENTH CENTURIES IN ENGLAND AND OTHER COUNTRIES

THE pointed architecture of England of the twelfth and thirteenth centuries differs from the Gothic of France, in the profiles of its subordinate members, such as capitals, bases, cornices, etc., no less than in its larger structural characteristics. This difference is manifest from the first, and is constant except where, as at Canterbury, the profiles are of French workmanship or design.

In considering these profiles we may begin with those of capitals. Among the earliest as well as the best capitals of the type of which I have already spoken as peculiar to England (in which the round abacus [1] takes the place of the square) are those of the east transepts of the Cathedral of Lincoln, and among the finest of these are the capitals of the triforium of the north arm, of which Fig. 140 is an illustration. This capital, though it lacks those qualities which distinguish the finest French examples, is of a character which certainly exhibits much to admire. In its main mass it is well formed as a member connecting the slender shaft with its heavy load. The Corinthianesque profile of its bell is at once functional and graceful. The round abacus, a form which agrees better than the square with the arch sections employed, presents no overhanging

[1] This form of abacus occurs in some purely Norman buildings, as in Southwell, Gloucester, and Malmesbury; but in Norman buildings generally the square abacus was employed. The general prevalence of the round form in early pointed buildings is, perhaps, one of the results of the Anglo-Saxon influence, which seems to have been stronger in the modification of details than in that of structural forms.

angles requiring support from crockets. Instead of crockets, therefore, a continuous series of shallow projections, carved into vigorous leaf forms, is carried with graceful art around

FIG. 140.

the bell, just under the abacus, affording that apparent support which the eye requires. Under the conditions involved a more admirable outline than that of the bell of this capital could hardly be devised.

The same general type is, with many beautiful minor variations, carried out in most of the capitals of Bishop Hugh's choir and transept, especially in the wall arcades of the ground story. But associated with them are a few others of curiously different and ill-agreeing character. Of these Fig. 141 affords an illustration. In this capital the

FIG. 141.

round abacus is joined to a bell of thoroughly French design —as may be seen by comparing it with Fig. 113 in the preceding chapter,—in which crockets of considerable projection, but having little connection with the abacus, take the place of the more appropriate supporting leaf forms of the former example. These capitals are interesting as affording evidence of the employment of French workmen in com-

FIG. 142.

pany with the more numerous Anglo-Normans and English, and as showing their efforts to adapt their own peculiar

modes of design to the local type characterised by the round abacus ; but the result is awkward and unsatisfactory. Associated with the round abacus, especially, as in this case, a round abacus of small proportionate diameter, the heavy crockets are meaningless, and spoil the profile of the bell. These crockets are, however, in themselves very beautiful. Their refined execution is in marked contrast with the singular coarseness of execution exhibited by the native sculpture ; and with a square abacus, in connection with which such crockets were originally designed, nothing could be finer. Capitals of this distorted French type are curiously mingled with those of the local character in nearly all the arcades of this early portion of Lincoln Cathedral. In the south triforium the entire groups of the first and second bays, counting from the west, are composed of them, while the widely different Anglo-Norman work elsewhere generally prevails. Other capitals in these arcades are still different. They have crockets arranged as in the preceding example, but differing from the French work entirely in design and execution. They are apparently local imitations of the French type ; one of them, from an early portion of the west transept, is shown in Fig. 142. This form of capital, with exaggerated crockets, as in the next figure but one, came at length to be very widely employed in the early pointed architecture of England. Fig. 143 exhibits another type of frequent occurrence. It is a modification of the type shown in Fig. 140, but hardly an improvement, since the ornamentation is excessively redundant, having the appearance of a wreath entwined around the bell, whose profile it too much hides. Yet as compared with the later forms of capitals in England it has the merits of comparative compactness, temperance, and considerable beauty.

The tendency to excessive redundance of ornament in capitals became very strong before the middle of the thirteenth century ; and this peculiarity, quite as much as the use of the round abacus, characterises the later forms of the so-called early English style. Fig. 144, a capital from the arcade of the north choir screen of Lincoln, is a fair instance of this phase of design ; though others might be chosen, as, for instance, some of those of the west façade of

FIG. 143.

Wells, which exhibit even more extravagant forms. The crockets, wandering far out from the bell, and nowhere

connected with the abacus, show a singular defect of architectural and artistic aptitude on the part of the native English designers who were by this time, apparently, gaining ascendency.

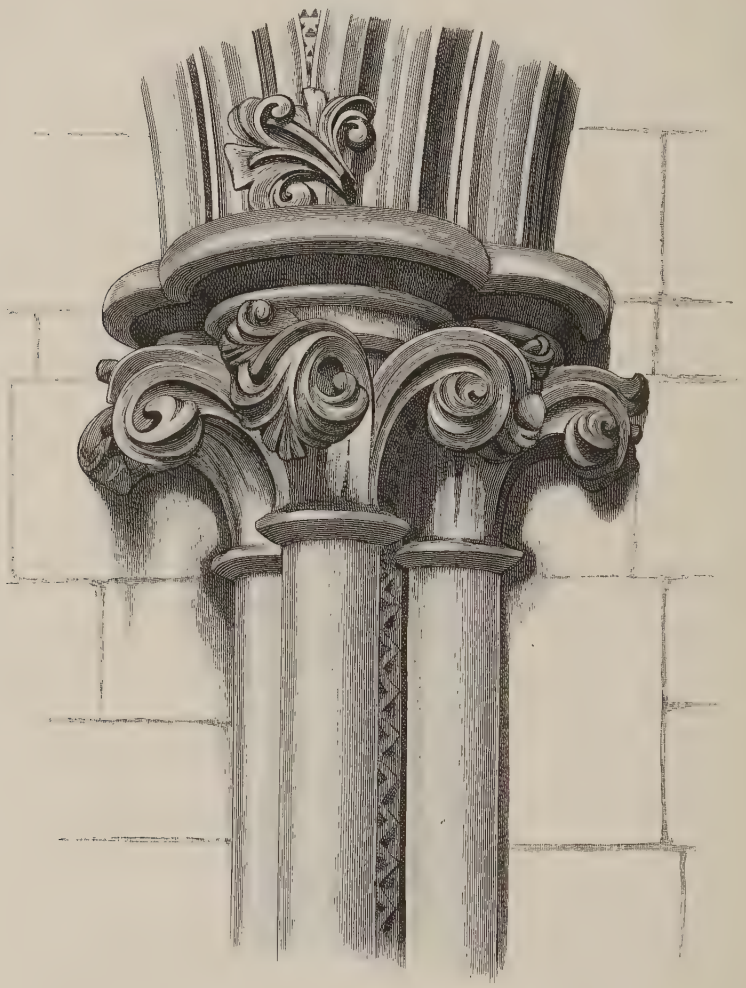


FIG. 144.

Of still different character are the nearly contemporaneous capitals of the transept and eastern end of the nave of Wells Cathedral. Though wrought by a local school, whose influence did not, I believe, extend beyond Glastonbury, yet these

ST. MARY'S COLLEGE OAKLAND, C

capitals cannot be overlooked in any just survey of the art at this time in England. Their characteristics, of which Fig. 145 exhibits an illustration, differ widely from anything at Lincoln or elsewhere with the exception of Glastonbury itself. Much in them recalls French work, though they are very different from the French capitals of Lincoln. The polygonal abacus, supporting angle crockets, and certain

FIG. 145.

peculiarities of detail and execution, are conspicuously French; while the excessive projection of the crockets is an English characteristic.

A very common type of capital in England in the thirteenth century is that which is simply moulded without any foliate sculpture, as at Westminster Abbey, Salisbury, Beverley, Southwell, and many other churches. It is rarely a capital of good profile, and there is often no well-marked division into bell and abacus. It consists largely of a series ill related of mouldings of various profiles and dimensions, which look as if they might have been turned out on

a lathe. Fig. 146, a capital from the triforium of Beverley, sufficiently illustrates this class. Such capitals give to the interiors in which they occur a bald, hard, and uninteresting effect.

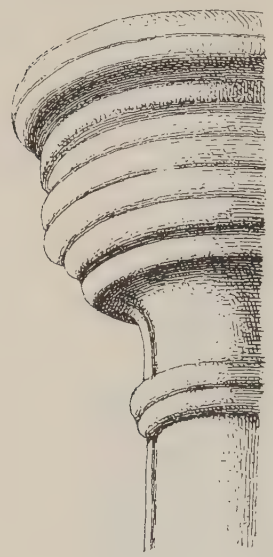


FIG. 146.

The profile of the abacus in England has, with few exceptions, all of its members, except the lower one, rounded. The upper member, whether in the interior or on the exterior of the building, has usually more or less of the character of a drip-mould, as at A, Fig. 147, from the west transept of Lincoln. Another characteristic profile is B, in the same figure, from the choir screen of Lincoln. Exceptional profiles, showing French influence, are C and D, from Glastonbury and Wells respectively. The astragal in England has usually either the profile shown in Fig. 143, or that shown in Fig. 144, rarely the varied profile of France.

The profiles of bases in the early style are usually like those of the French Gothic in exhibiting various modifications of the ancient Attic type. They are, however, as at

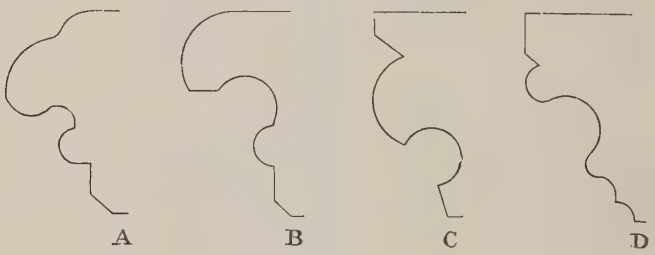


FIG. 147.

A, Fig. 148, frequently composed of a larger number of members than were common either in ancient times or in the Gothic of France. Less refined in outline than French bases—their rounds being often nearly segmental curves rather than finely varied ones—they are very spreading in form, and their hollows are excessively deep-cut. The pro-

files B, in the same figure, from the nave, and C, from the Presbytery, of Lincoln, are illustrations of some of the best

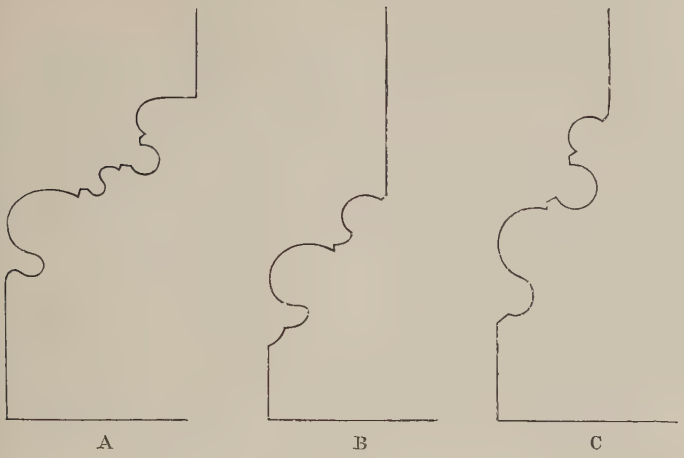


FIG. 148.

forms ; while such poor outlines as A, Fig. 149, from the choir of Ely, B and C, from the triforium of the nave of Lincoln,

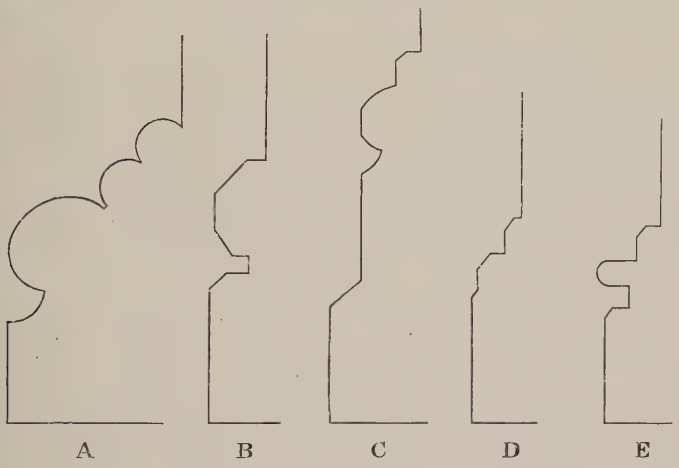


FIG. 149.

D, from the triforium of the choir of Hexham, and E, from the clerestory of the choir of Whitby, are not uncommon.

The square plinth, like the square abacus, is unusual in

England. The lower member of the base is commonly round in plan, and of the superposed courses of which the

FIG. 150.

base is made up, one or more are usually moulded, as at A, Fig. 150, from the aisle of the choir of Lincoln, and B, in the same figure, from the choir of the Temple Church in London.

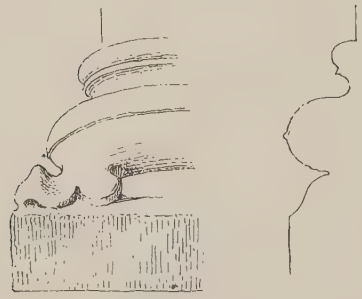


FIG. 151.

The square plinth being omitted, there was, of course, no place for the angle spur, and the base in the early pointed architecture of England lacks, in consequence, that perfect expression of firm foothold, which is so marked in the bases of the French Gothic. In a few instances, however, where square plinths occur, as in the north porch of Wells, the angle

spur is found; but in this porch it is curiously (though very appropriately, since these bases rest on a ledge which is above the eye) placed upon the under side of the torus, as shown in Fig. 151.

The characteristic profile of the string-course in this architecture is made up almost exclusively of curves, as at *a*, Fig. 152, from the choir of Lincoln. The principle of the drip-mould is partially carried out, but not with such completeness as in the external strings described in the last chapter. The want of steepness in the watershed, its curved outline, and the incision near the lower edge, interrupting the

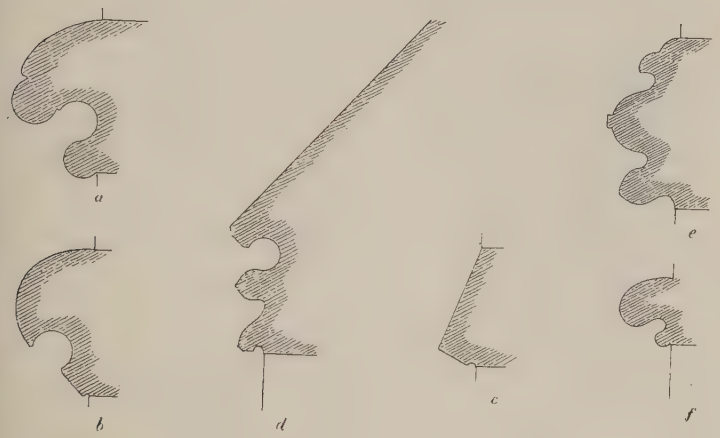


FIG. 152.

flow of water where it ought to flow quickly, are certainly not appropriate characteristics. These defects, together with the absence of a sharp under edge to cut off the drip, make this profile far less functional than the common French type. Many variations are met with in strings of this same general character, of which *b*, in the same figure, from Glastonbury, is an example, while often associated with such profiles are others of almost purely French character, as *c*, from the clerestory of the choir of Lincoln. At Wells, in the mouldings at the level of the impost of the arch over the central portal of the west façade, these two types are curiously brought together, as at *d*, in the same figure.

In the Gothic of France the corbel table is, from the earliest times, omitted. But in England this feature of the

Romanesque style is retained through the whole of the thirteenth century, appearing conspicuously in Salisbury, in the Presbytery of Lincoln, and in many other buildings.

Internal string-courses do not much differ in profile from those of the exterior, except that the drip-stone form is not always so fully developed in them. A characteristic early example is that shown at *e*, Fig. 152, which is the string at the level of the window sills in the aisle of the choir of Lincoln. The drip form, however, frequently occurs, as at *f*, the triforium string of the same choir.

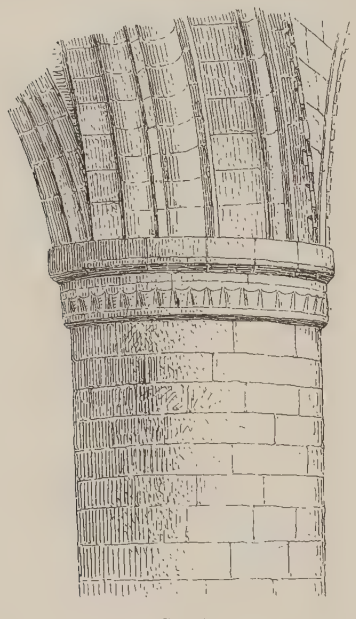


FIG. 153.

In arch mouldings the Anglo-Norman architects displayed a singular predilection for multiplicity of members varying in profile and separated from each other by deep hollows. In this way a considerable effect of lightness was given to arches that were really very massive. Even in the most purely Norman buildings in England, such as St. Albans, Norwich, Romsey, Ely, Peterborough, and others, the fondness for multiplicity of parts in arch sections is shown by the employment of at least three orders in the main arches, and these orders are not uncommonly again subdivided. This multiplication of orders naturally led to the circular impost section, to which the round abacus was not seldom adjusted, as at Southwell (Fig. 153). And in the early pointed style the round section was soon introduced into each separate order by new arrangements of the rounds, hollows, and fillets, into which these orders were subdivided. One of the distinctly Anglo-Norman peculiarities of arch mouldings appears for the first time, so far as I know, in the hollow which is given to the soffit of the sub-order of the pier arcade in the nave of Malmesbury Abbey (Fig. 154).

This type is amplified in the arch mouldings of St. Mary's Church, New Shoreham, and is further developed in the

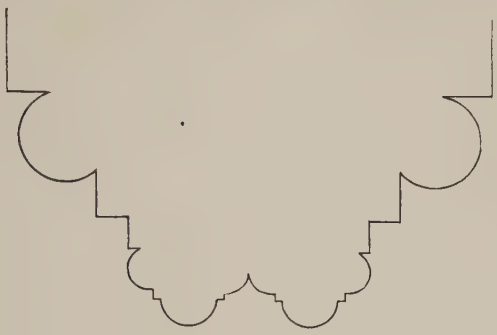


FIG. 154.

pier arches of the choir of Lincoln (Fig. 155).[1] In the nave of the same building the arch moulding becomes

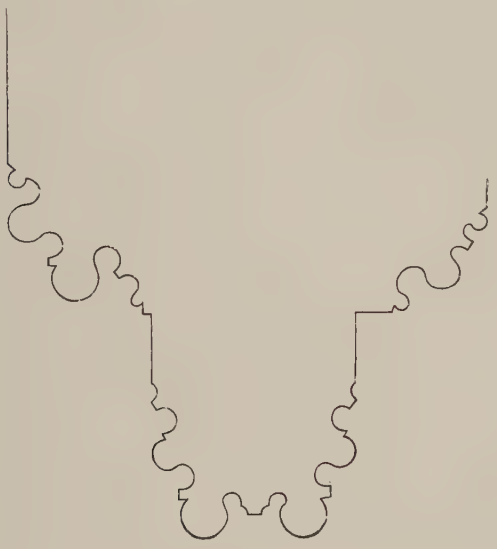


FIG. 155.

richer by the addition of a third order, and each order now assumes an almost perfectly segmental outline.

[1] I would emphasise the resemblance of the arch mouldings of Lincoln to those of Malmesbury, because it has been erroneously affirmed by Mr. Parker and others that the choir of Lincoln is a purely English building in which no traces of Norman influence appear.

The practically endless variations of arch profiles which characterise this style need not be examined further, as they consist merely in unessential changes of details. They are, for the most part, merely fanciful, and rarely show any fine artistic qualities. The minute subdivisions and the frequent introduction of narrow fillets, which became constant by the middle of the thirteenth century, produce a hard and linear effect unpleasing to an eye that has become accustomed to the simple and appropriate profiles of the Continent. The greater simplicity of the mouldings in Bishop Hugh's choir at Lincoln is in agreeable contrast with the subdivided contours of the mouldings in the presbytery of the same church; with which the comparison is easily made, since both may be viewed from the same position.

The profiles of vault ribs are not materially different from those of other arches. In the choir of Lincoln the principal ribs of the aisle vaults are almost identical in section with the sub-orders of the pier arches. In this same choir, however, another profile (Fig. 156) occurs which, if it be a part of the original construction, is of curious interest, as exhibiting a character much like that of the vault ribs of Amiens and Beauvais. The likeness to these French ribs is in the large round and filleted lower member. This member does not, I believe, appear in France before 1220, and if the rib of Lincoln be a part of the original construction it furnishes an instance of its earlier use in this building. If this be so, it is not impossible that the corresponding profiles in France were derived from England. Indeed, it is altogether probable that there was after the twelfth century, in matters of detail, more or less reaction of the art of the island upon that of the Continent. As the French appear to have derived their first ideas of sexpartite vaulting from the Normans, they would naturally continue to profit by whatever new features might be devised in either

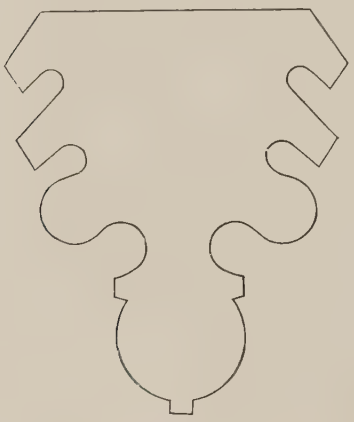


FIG. 156.

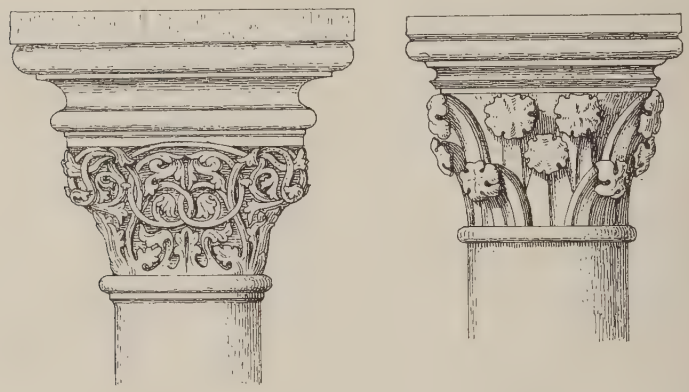
Norman or Anglo-Norman art; but whatever they borrowed they recreated and improved. This rib profile of Lincoln is, comparatively, not a fine one. The sharp re-entering angles where the lower fillet joins the round, the absence of re-entering angles as foils to the curves in the composition of the rounds and hollows, and the meaningless drip members above, render it far inferior as a piece of artistic design to the exquisitely simple and graceful profile of Amiens. It is, however, perhaps, more likely that the vaults in which these ribs occur were reconstructed at a later epoch, and that the profile of the rib was then imitated from French examples. This profile is not, I believe, found elsewhere till considerably later, as in the nave and presbytery of the same church, where this lower filleted round is employed in all the ribs.

The difference of spirit between the works of the French Gothic architects and those of the Anglo-Normans is thus manifest hardly less in the respective treatment of mouldings than in modes of construction. Where the French architect kept his orders few, and his arch mouldings simple, confining his chief enrichment mainly to the sculpture of the capitals, the Anglo-Norman multiplies his orders, and subdivides them into wearisome lines, while he is often content to treat his capitals in the same way, denying them the enrichment of sculpture, and thus offering no relief to the endless linear elaboration. And this multiplicity of arch lines is still further increased by the invariable employment of hood mouldings with profiles, in the interior no less than on the exterior, of the drip-stone type.

In such ways the Anglo-Norman lack both of the sense of functional fitness and artistic beauty is almost constantly displayed. The architects of the island never perceived that the lightness and multiplicity of parts in the Gothic style are natural and unsought results of a peculiar constructive system, and not at all mere decorative peculiarities; but regarding the effect of lightness and multiplicity as an end to be sought, they cut up their really heavy piers and arches into an unnecessary, and, as we have seen, often illogical, profusion of small members.

In Germany it appears that during the twelfth century no material changes in profiles were made. Capitals retain

the peculiar forms of the German-Romanesque, in which the cushion type, in great variety of outline and proportion, mingles with a type which more or less recalls the Roman-Corinthian, as at St. Godard's Church, Hildesheim, the Abbey Church of Königslutter, and many others, while string mouldings retain the flat upper surface of ancient design. The Cathedral of Magdeburg, which exhibits profiles dating from various epochs from early in the thirteenth century to the close of the fifteenth, may, together with the Cathedral of Cologne, sufficiently illustrate the characteristics of such details in German art. The tenacity with which



A B

FIG. 157.

the Germans held on to Romanesque traditional forms is shown at A, Fig. 157, a capital from the choir of Magdeburg, while something of the nature of the early changes which they wrought on French Gothic types is shown at B in the same figure. These are not altogether bad profiles, though they are distinctly inferior in expression and in grace, not only to French, but also to the best Anglo-Norman types, such, for instance, as that shown in Fig. 140. The profile of the abacus of the capital (A, Fig. 157) is that of an inverted Attic base, which, in this pronounced form, is hardly an appropriate one for an abacus, because the projection of the upper moulding is too great to give a good line of support. However little the outline of the abacus may have to do with the real strength of the member, it is important

that its general outline should possess an expression of strength—such as a more continuous slope, like that of the French profile, gives. The characteristic base of this epoch (Fig. 158)[1] is equally far from showing a good form. It has none of that subtle relationship of parts which gives to the bases of the French Gothic their appropriate and beautiful character. The equal depths of the scotia and lower torus violate the laws of proportion, while the excessive projection of the upper torus gives an unpleasantly heavy effect.

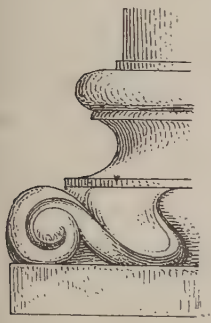


FIG. 158.

I will not attempt to exhibit any considerable number of examples of capitals and other profiles of the mediæval buildings of Germany. The distinctive peculiarities of these profiles were of late development, and do not come out with distinctness earlier than the middle of the thirteenth century. At this time in the choir of Cologne they appear fully developed. They depart widely from the best French models, though they recall in some degree the characteristics that were introduced in the declining Gothic of France, from which they are doubtless largely copied. But they even exaggerate the defects of the late French examples, and add new eccentricities that appear to be wholly German. Figure 159,[2] a capital from the triforium of this choir, illustrates one of the most common types in which the bell is in reality little more than a continuation of the shaft itself. The true capital in this case is, indeed, largely the abacus alone. Whatever appearance of expansion there is below the abacus is mostly given by the sculpture. The astragal is in effect but a band about the shaft, and the sculptured

FIG. 159.

[1] Figures 157 and 158 are copied from Förster.
[2] Figures 159, 160, and 161 are copied from Boisserée.

ornament forms no part of the real profile; every characteristic of a functionally expressive capital is wanting. The cylindrical form of the shaft above the astragal, in place of a well-shaped bell, is not always so visible as it is in this instance, but it nearly always exists, though it may be more completely covered by the foliage, which sometimes gives the aspect of a better formed capital. The base profile (Fig. 160, from one of the main piers) conforms more nearly with the base profiles of the French Gothic.

FIG. 160.

The pier archivolts (Fig. 161) have much the character of those of the later Anglo-Norman architecture—the salient members having fillets, and being separated by excessively deep hollows,—giving a linear effect like that of the corresponding mouldings of the Presbytery of Lincoln. As at Lincoln, too, these mouldings are so arranged as to give a round or polygonal section. In the nave of the same building the archivolt is furnished with a richly crocketed hood moulding. In fact, in arch mouldings, and perhaps in other details, the architecture of England seems at this time to have influenced the art of Germany.

The profiling of cornices and other external strings is largely of French origin, but it is considerably modified by the German taste, and shows a peculiarly hard character unlike that which any other style exhibits.

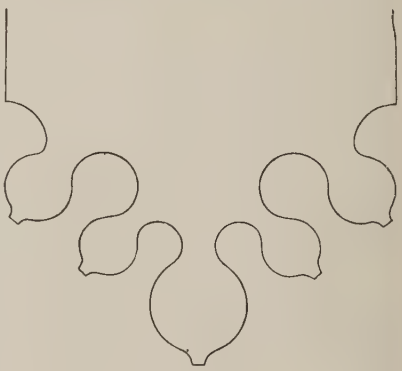


FIG. 161.

The profiles of the pointed architecture of Italy are very diverse in character. No generally recognised principles seem to have governed the designer in their production. In many cases, especially in capitals and bases, the profiles of the French Gothic are closely approached, while often they are as widely departed from. In his more independent productions in this field the Italian designer displays little

inventive aptitude, but follows an apparently capricious fancy with singular disregard of functional needs, and not seldom in violation of all principles of grace and beauty. As might naturally be expected, his native classic bent more or less constantly displays itself, though in the pointed architecture of Italy neither Gothic nor classic principles are ever consistently adhered to.

For illustration of the types of capitals and bases, which have the most Gothic character, we may take those of the

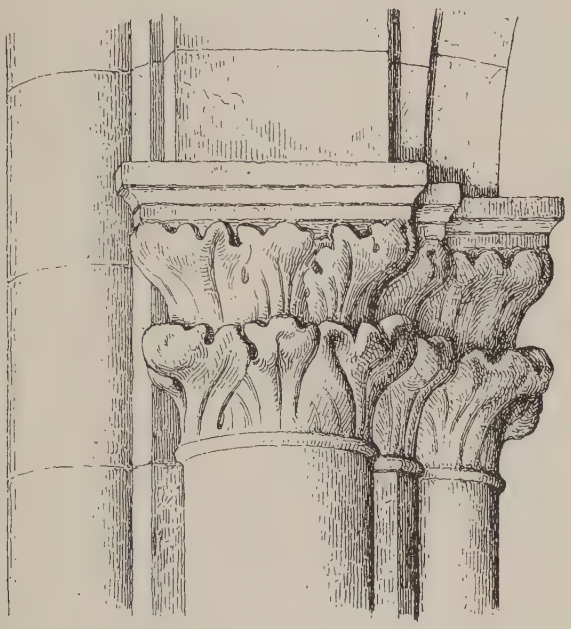


FIG. 162.

nave of Sta. Maria Novella in Florence. Fig. 162 is a group of capitals of one of the lower piers on the south side; they are used only for those members of the pier from which the arches of the lower story spring—the vaulting shafts of the high vaults being continuous in their ascent. Such a group would hardly be out of place in France, though the projection of the lower range of ornaments breaks, rather more than it would in France, the profiles of the bells. The capitals of the piers of Sta. Croce are, in this respect, better in outline; and very fine ones of almost pure Gothic

type occur on the small shafts of the exterior of the Church of the Spina in Pisa, as well as in many other churches. But capitals of very inferior character are frequently met with. Perhaps the least admirable types to be found in Italy are those of the Cathedral of Florence which are sufficiently illustrated in Figure 104. As I have before remarked they are hardly capitals at all, but are rather

FIG. 163.

sculptured mouldings surrounding the pier below the impost level, where neither capital nor mouldings have any proper place.

Italian bases are almost as various in form as the capitals. The profile (A, Fig. 163), that of the base of the pier in Sta. Maria Novella, is almost of the French variety of the Attic type; and bases of still more French character, especially in connection with small shafts, sometimes occur

in the Italian pointed style; but the great pier bases are rarely as good as these of Sta. Maria Novella. They are often, indeed, of very unsatisfactory form. The profile B, Fig. 163, for instance, from the Cathedral of Florence, is almost as poor as the capital of the same pier just noticed. This base, like the capital, consists of a mere series of mouldings, and no distinct and well-formed footing for the body of the pier is provided. It is true that the straight line, *a b*, in this profile projects a little beyond the face of the pier above, giving somewhat the effect of an enlarged base, but the enlargement is too slight to be readily appreciated by the eye. In the profile C in the same figure, from the base of one of the piers of Sta. Croce, this straight line is advanced considerably beyond the face of the pier, and the character of a base is thus in greater measure secured.

Arch mouldings in the Italian pointed architecture do not exhibit a great variety of profiles. They have, in fact, the simplest profiles which occur in this style. Interior arches are almost without exception perfectly square in section, and without subdivisions or adornments of any kind. They are in some cases, as in Sta. Croce, in two orders —the one advancing but little beyond the other; and sometimes, as in the Cathedral of Florence, a simply bevelled hood moulding is added. Where more than one order occurs their very slight projection gives an effect like that of the *fasciæ* of the ancient architrave rather than of the arch orders of the styles of the North.

Italian vault ribs are commonly bevelled, but they are rarely otherwise adorned. The diagonal ribs of the Cathedral of Florence, however, have the section shown in Fig. 164, where the use of the *cyma recta* is one of the many indications of the hold which classic features had on the minds of the builders at this time in Italy. It is always observable that the use which the Italians made of these classic elements was never inventive, as it was with the Gothic architects. They are often associated with elements which differ greatly from those of classic design, but they themselves remain unmodified.

The outside cornice is generally of classic profile; but it is not unfrequently carried on a corbel table, and

made to support a parapet, as in the Cathedral of Florence. Other strings conform no less to the classic types, anything like a drip-stone being of rare occurrence in Italy.

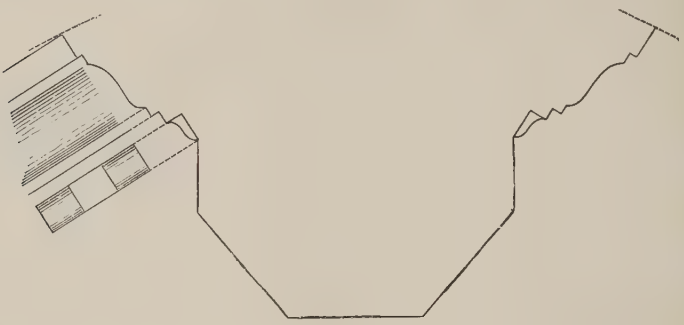


FIG. 164.

It is not necessary to examine in detail the profiles of the pointed buildings in Spain ; they are, of course, mainly Gothic. But, like the whole structural system, they are French rather than Spanish. What minor, local modifications of outline a thorough examination of them would reveal, I know not, but such modifications, if they exist, are certainly unimportant.

CHAPTER VII

GOTHIC SCULPTURE IN FRANCE

THE fact that during the twelfth century a remarkable school of sculpture was developed in the Ile-de-France, in connection with the Gothic art of building,—a school in some respects far in advance of all others of the Middle Ages—has not received the attention it deserved from students of the history of art. Modern writers, following Vasari, have so generally regarded the revival of the arts as having originally taken place in Italy, and the names of Pisano and Cimabue, as the pioneers of revival, have become so fixed in our minds, that we are naturally unprepared (so far as our knowledge is derived from the literature of the subject) to find that a no less remarkable revival had place in the west of Europe a hundred years before the great Italian awakening.

Attention has indeed been called by Flaxman,[1] and more recently by Cockerell,[2] to the fact that the façade of Wells Cathedral stands as a witness to the existence of an advanced school of sculpture in Western Europe contemporaneous with the art of Niccola Pisano; but the significance of this fact has made but little general impression. And neither Flaxman nor Cockerell appears to have recognised the further fact that nearly a hundred years before the date of the sculptures of Wells a school of sculpture existed across the Channel which had produced works at St. Denis, and at Chartres, of even greater merit.

The earliest schools of sculpture on this side of the Alps were those of Southern Gaul, where, more than elsewhere in

[1] In his *Lectures on Sculpture*, 1829.
[2] *Iconography of the West Front of Wells Cathedral.*

the west, the ancient civilisation had retained its life and vigour. Here the country was thickly covered with Roman monuments including sculptures which, coarse and unskilful as they for the most part were, afforded models, in some measure characteristic, of ancient styles and modes of treatment.

But the productions of these schools abundantly show that other sources of instruction and inspiration were also open to them in the works of Byzantine art—an art which, in its best forms, was of a far more living and potent character than the provincial Roman art.

The principal examples of Byzantine design offered to

FIG. 165.

FIG. 166.

the artists of the West were the manuscript illuminations and the carvings in ivory, that were possessed in considerable numbers by the great monastic establishments, especially those of Cluny and its dependencies, which were the active centres of artistic production in the early Middle Ages.

Of these manuscripts many are still preserved in the National Library of Paris and elsewhere; and the miniatures with which they are profusely adorned are worthy of attentive examination. These miniatures afford a very different notion of Byzantine art from that which is derived from the writings of Vasari, from the formalised productions of the school of Mount Athos, or even from the splendid mosaics of Venice and Ravenna. They exhibit little of the stiffness, inelegance, and want of life and movement that are commonly conceived

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to be characteristic of Byzantine design. In fact, they often display a remarkable degree of grace, action, and expression. Figs. 165 and 166, from a Greek manuscript of the tenth century,[1] will illustrate their qualities of design, though much of their beauty is lost by the absence of the colouring. The student of Greek art will hardly fail to perceive in these diminutive figures[2] some features that are of distinctly Hellenic origin. The influence of such works as these upon some of the early schools of Southern and Central Gaul, and afterwards upon the more Northern schools, will upon comparison become clearly apparent.

The degree of what may be properly called classic feeling and skill in design that was sometimes reached in these early schools is shown, for instance, in the sculptures upon the lintel of the Church of Notre-Dame du Port at Clermont-Ferrand, which date from the end of the eleventh century, and of which Fig. 167 is a single figure of remarkable beauty.

But the schools of art south of the Loire were not progressive; they hardly displayed any powers of original invention—they had little independent vitality.[3] They were essentially imitative schools—they gave birth to no important developments; and after the twelfth century they gradually passed into decline.

North of the Loire, however, the case was different. In Burgundy the Abbey of Cluny, in the early part of the twelfth century, maintained schools of art in which sculpture, though still largely bound by former conventions, gave evidence of a new impulse derived from a fresh observation of nature. Of this sculpture the Abbey Church of Vézelay and the Cathedral of Autun afford, in the archivolts and tympanums of their portals, characteristic examples.

These schools of the South and of Burgundy, with perhaps also in some measure the schools that then existed along the Rhine, were the chief sources of stimulus and guidance to the early sculptors of the Ile-de-France.

In this latter region the conditions for the growth of a school of art were, by the beginning of the twelfth century, exceptionally good. And not only was the character of the

[1] National Library, Paris, MS. No. 64.

[2] Figs. 165 and 166 are reproduced of the exact size of the originals.

[3] With a few exceptions, perhaps, as in the case of one branch of the school of Toulouse. See Viollet-le-Duc, *s.v. Sculpture*, pp. 125, 126.

race, as we have before noticed, peculiarly fitted for artistic pursuits, and the conditions of climate also such as would naturally favour the development of a new art, but the very geological formation of the country was such as to meet all the requirements of this new art, both artistic and constructive. As Greece had her Paros and Pentelicus, and Italy her

FIG. 167.

Carrara, so had France, in the basins of the Seine and Oise, among other materials, her beds of *lias cliquart*, a stone of fine grain and strong substance, easily cut, and suitable for slender shafts or delicate carving.

Of figure sculpture in the Ile-de-France we have few examples of an earlier date than the second quarter of the twelfth century. But from 1140 there are remains which show, associated with the imperfections peculiar to an immature art, a grace and mastery of design, a truth and tenderness of sentiment, and a fineness and precision of chisel touch, that are unparalleled in any other schools,

save those of ancient Greece and the later schools of Italy.

Among the first of these works are the sculptures of the west portals and the portal of the north transept of the Church of St. Denis. In the portal of the transept are life-sized, full-length, figures of kings—one against each shaft of the jambs, which disclose merits before unknown in Northern Europe. At first sight these sculptures may not impress the beholder as much superior to those of the schools of the South; but on further study and comparison their superior qualities will be manifest to a discriminating eye. If they be compared, for instance, with the famous statues of the cloister of St. Trophime at Arles (Fig. 168), which are at least half a century later in date, the remarkably early advance of the schools of Paris and its neighbourhood will be strikingly apparent. In Fig. 168 it will be noticed that, notwithstanding the fine classical cast of the draperies, there is much of the rigid character that is peculiar to the formal types of Byzantine design. Traces of Byzantine convention in treatment of drapery are clearly apparent, especially on the breast, where folds are indicated by simple incised lines on a surface but very slightly, and by no means truthfully, modelled. In the heads and hands there is a degree of angularity and a tendency to model in planes which bespeak a comparatively rude art. In Fig. 169, a statue from the portal of the transept of St. Denis, these defects do not appear. In the heads and extremities there is no block-like clumsiness; the surfaces are finely

FIG. 168.

and naturally modelled; the brows are delicately arched; the features carefully and truthfully formed; the hair and beard softly massed and subdivided into orderly locks, as in a fine Greek coin. There is no undue elaboration or attempt to give the hard stone a look of real hair; but as far as the material would naturally allow the sculptor has suggested it. With special care and tenderness has he wrought the mouth, the thin, gently compressed, lips, the light parted moustache, and the well-formed chin. The drapery is as simple and severe in its lines as is that of the preceding figure; but there is a superior grace of arrangement in the folds, and although the work is wanting in the freedom and skill of later productions, there is no trace of Byzantine convention in its modelling. Altogether this figure, which dates probably from about the middle of the twelfth century, distinctly manifests a new and high order of genius. And it fully indicates those traits which afterwards became so conspicuously characteristic of the French Schools, and to which they owe their pre-eminence,—the disposition to profit by tradition, and at the same time to draw fresh materials from living nature.

FIG. 169.

The statues of the west front of the Cathedral of Chartres are probably of a little later date. They are more severely architectural in character than the figures of St. Denis; but they are not rigid like the sculptures of St. Trophime. In execution they are remarkably refined and

beautiful. The heads display a variety and life-likeness that plainly indicate the close observation of nature. Each one has an air of veracity, as if it were an individual portrait.[1] The treatment of hair and beards is perhaps even less formal than in the preceding example, and in drapery the modelling of folds is true, though it retains a good deal of archaic character. In fact, these statues are far from the stiff and immobile things which they are often thought, by inattentive observers, to be. Their severe restraint and exaggerated elongation are largely of definite architectural purpose, and not wholly the result of incapacity on the part of the carver to give them a more natural freedom and movement. This is evident from the qualities which they exhibit, notwithstanding their sternly conventional treatment. Within the limits fixed by his conditions the artist has managed abundantly to show his skill as a life-like and graceful designer. Take, for instance, the example, Fig. 170. Although standing erect, and facing forward, the upper portions of this figure are not wholly wanting in ease and apparent power of movement. Observe the positions of the arms, and compare them with the arms in Fig. 168. How natural and capable of movement they appear when thus compared! For beauty of changeful curves the head and hair are especially noticeable. The easy fall of that portion of the mantle which crosses the throat, the true modelling of the drapery over the breast and arms, and the careful rounding of the lifted hand and fingers, though hardly comparable to the

FIG. 170.

[1] M. Viollet-le-Duc, *s.v. Sculpture*, p. 118, calls attention to this veracity and remarks upon the distinctly Gallic types presented by these heads.

work of Donatello or Ghiberti, are scarcely inferior to that of their Italian predecessors. The restraint of the figure is apparently self-imposed in obedience to the demands of its architectural position. The rigidity of the example from St. Trophime appears, on the other hand, to be inherent in its nature.

It is worthy of notice that the mediæval architect did not employ the human figure in the manner of a caryatid. The ranges of statues, which form such conspicuous and characteristic features of the vast receding jambs of the portals of French churches are placed each against a shaft which bears its archivolt. To make the figure itself an architectural support would not be in accordance with the rational spirit of Gothic art.[1] Nor, in true Gothic, are statues set in niches in walls. For in Gothic the wall spaces are small and contain no more substance than is necessary, leaving nothing to spare for recesses. The places occupied by the statues in the buttresses of the Cathedral of Paris are not niches; they do not diminish the mass of the buttress; they constitute really nothing more than decorative forms of set-offs. The true set-off is the level ledge from the corners of which shafts rise to support the sloping water table, thus forming a canopy within which the statue is placed. Nor can the canopies of the pinnacles of buttresses, in which statues occur, as at Reims, be properly termed niches. The nearest approach to niches in pure Gothic are those spaces between the mouldings of the archivolts in which canopies are set over statues, as in the portal of the Virgin at Paris. It is only after the beginning of the decline of Gothic that real niches occur, as in the façades of the transepts of Paris.[2]

Sculptured statues in Gothic art are thus so far independent of the construction as not to have any real mechanical office, and yet they are not independent in expression as are the statues placed in niches of walls in Roman and Renaissance buildings. They are, especially when occurring

[1] It is true that corbels are often carved into the forms of crouching figures, as at Amiens; but these are on a small scale, and are never treated like the caryatid, where the weight rests on the head.

[2] The real niches that occur in the gable of the central portal of the west front of Bourges are exceptions to the general rule. See Viollet-le-Duc, *s.v. Niche*, p. 414, *et seq.*

in the jambs of doorways, strictly in harmony with the construction—so much so, indeed, that they seem to be a necessary part of the composition. In no other style has the union, it may even be said the fusion, of the structural and ornamental elements been so perfect.

The conventional restraints of such sculpture in the twelfth century were severe; though still, as we have seen, it was not wanting in much expression of life. But the artists of the early thirteenth century were able to add more freedom to statues in the same positions without overstepping the bounds of architectural subordination. Before we pass on to the consideration of such works, however, we must examine a few other examples of the art of the twelfth century.

Besides the jambs and archivolts the tympanum and lintel presented, within easy view, admirably protected fields for the exercise of the sculptor's art,—fields where architectural restraints, though still imperative, were less narrow. Here was place for sculptured composition embracing many figures in free action, embodying some scriptural story or religious legend.

Among the earliest remaining examples of such compositions are those of the tympanums of the portals of the west front of St. Denis, and the tympanum of the south door of the west front of the Cathedral of Paris, which last formed part of the earlier works wrought under Maurice de Sully[1] which were destroyed to make room for the present façade. The preservation of this work, and its incorporation with the new edifice, speak well for the generous recognition of merit in the works of their predecessors, by the artists of the early thirteenth century. In these sculptures the qualities already noticed as characterising the early art of the Ile-de-France are conspicuous. A new spirit animates the old forms, and a corresponding increase of technical skill is manifest, though some of the older conventions of modelling and treatment are still naturally pronounced.

Of all the remaining works of this class which were executed in the twelfth century, those of the lintel of the Cathedral of Senlis are of surpassing beauty. They are

[1] See the *Itinéraire Archéologique de Paris*, par M. F. de Guilhermy, pp. 68, 69.

two in number, the lintel being divided into two parts by a central shaft. The subjects are respectively, the Death and the Resurrection of the Virgin. The composition on the spectator's left, representing the death, is so much mutilated that it cannot be fairly judged of. But the one on the right (Fig. 171), representing the resurrection, though sadly broken in parts, is yet fairly complete as a whole. It is not easy to find terms in which to speak of so beautiful a work. In sentiment and grace it is equalled by few works of any school or period. And the archaisms of treatment which it exhibits,

FIG. 171.

like those in the subsequent masterpieces of Giotto, which the composition in many points resembles, do but enhance its charm.

It is an instructive fact, not, perhaps, often enough commented upon, that the works of art in which the expression is most simple and sincere are in every school usually those of early masters, who have but imperfectly attained command of the means of expression. With the full attainment of technical skill there almost invariably comes a baneful degree of sophistication. Compare, for instance, Giotto's fresco of the Death of St. Francis with Raphael's Transfiguration ; or Carpaccio's St. Ursula with Titian's Assumption.

In this lintel of Senlis there is at once a spiritual beauty

and a natural expression in the eager group of welcoming spirits as they press forward, wing softly crowding wing, to aid the awakening soul. No self-consciousness is there, no ostentatious gesture, no vain display of curving plume, or studied fold of garment. All the angelic attendants are absorbed in joyful ministry to the rising spirit, and each figure holds its place in a group of marvellous beauty.

In composition of lines and masses the design is equally beautiful. There is a fine system of continuous, radiating, and encompassing curves in the wings and drapery; as well as an artful sympathy of position in the bodies, and repetition of masses in the placing of the heads. It would be difficult to point, in the whole range of plastic art, to a figure of more subtle beauty than that of the angel on the left, who stoops forward to support the shoulder of the Virgin—a figure which is at the same time adroitly employed by the artist to balance, by an opposing form, the rest of the composition. As in all noblest art, it is here evident that the artist's mind was encumbered by no merely theoretic ideal of beauty. No canonical type of head, hand, foot, or general form, is exhibited. The types are natural, varied, and simple. Individual parts, when taken by themselves, display no fanciful or conventional character. The charm of the work depends upon fundamental qualities of design; upon a graceful relation of forms, extending from the arrangement of the broad masses down to that of the least details. So, too, it was in the older art of Greece. It is the same principle that gives to the Harpy Tomb and to the Leucothea of the Villa Albani a kind of beauty that is wanting in the art of Scopas and Praxiteles. And so it was again with the subsequent works of the early Italian designers. The polished, but conventional types of form which belong to later developments of Italian art, and which Vasari has done so much to popularise, do not appear in the arts of Italy before the time of Raphael. The types of Giotto, of Angelico, and of Massaccio, were caught directly from the familiar men and women around them; but with such materials these masters, like those of France in the twelfth century, knew how to produce designs of exalted beauty.

I do not mean to imply that imperfections of form are necessary to the best art, or that more perfect forms than

those of the earlier masters might not be employed with advantage, had the artist skill to produce them. More perfect forms were attained and employed by Praxiteles and by Raphael. But the integrity of feeling which was exhibited in the works of the early masters was lost before such command of form was reached. In the later art of Raphael, as compared with the earlier arts of Italy, more is lost in expression than is gained in form.

The plastic art of France in the twelfth century does not exhibit any of those superficial attractions which appear at a later date; but it is little inferior to that of any other time or school in expression and essential grace. And of such art there is hardly a more admirable work than this lintel of Senlis. In execution it is no less excellent than in design and sentiment. Wrought in a firm, close-grained stone—which takes a finish almost equal to that attainable in marble—every mass is finely modelled, and every detail is crisply cut.

The number of works of this epoch remaining is limited. The most extended, if not in all respects the most noble impulse in the art of figure sculpture, was yet to come. The foregoing examples will serve to show the state of development that had been reached in the Ile-de-France, before the great façades of Paris, Amiens, and Reims had come into existence.

Of the cathedrals that were begun in the twelfth century, few were completed so far as to include their façades before the thirteenth. The vast wealth of statuary which adorns these buildings is, for the most part, subsequent to the year 1200.

Gothic sculpture of the early thirteenth century develops into forms that are less cramped by imperfect technique, and that bear fewer traces of former conventions, than the works of the preceding century. Taught by the example of the earlier schools, imbued with the traditions of Byzantine design, but knowing how to reject its unessential peculiarities, and with increasing proficiency in execution, the artists of the Royal Domain began to give freer play to their own observation and imagination, and to produce works of art which, in all but sentiment—in which the works of the twelfth century cannot be surpassed,—remain unrivalled among the productions of the Middle Ages.

The portion of the Gothic building where figure sculpture is chiefly displayed is the western façade, though other parts of the exterior are also more or less profusely adorned with figures. In a cathedral of the first order, such as Paris, Chartres, Amiens, or Reims, there are altogether many hundreds of sculptured figures. Gathered principally within the widely splayed portals, there is often, in addition, as at Paris, Amiens, and Reims, a row of colossal statues just above them extending across the entire front. And beside these there are figures under canopies of the buttresses, as well as gargoyles, and grotesque creatures projecting from the cornice, or ranged upon the parapet.

Of all the great façades that of the Cathedral of Paris is the most important in point of sculpture. Begun in the very first years of the thirteenth century, it exhibits the finest work of the French carvers during the entire first quarter of that century. No other church, not even that of Amiens, affords so fine a display, notwithstanding that a great part of it has perished by violence. Of its three great portals nearly all the sculptures of the tympanums and archivolts remain substantially unimpaired. The north door is the earliest, dating from about 1205,[1] it being here that the erection of the façade was commenced. The sculpture of the tympanum is thus in date not long subsequent to that of Senlis; but in point of freedom and skill in the rendering of form there is a marked advance. This tympanum is divided horizontally into two compartments. In the upper compartment is represented the coronation of the Virgin, and in the lower compartment (Fig. 172) her entombment. Such skilful treatment of form and such beauty of modelling had not before been seen since the classic times of antiquity. The remarkable likeness to certain qualities of Greek art here exhibited is both noticeable and instructive. This does not result from imitation; for original Greek art was, of course, not known to the carvers of the time, and the likeness is not superficial (as it would be in imitative art), but fundamental. It came rather through the free study of nature, which, with men

[1] See Viollet-le-Duc, *s.v. Porte*, p. 421. Guilhermy, *Itinéraire Archéologique de Paris*, says, p. 24, that the west façade was not begun till near the end of the episcopate of Pierre de Nemours (1208-1219).

constituted like the mediæval artists of France, and disciplined as they were by the Greek traditions that had come through the Byzantine channel, naturally led to results having much in common with those that had before been reached in a similar way by the Greeks. Not, however, that the mediæval outlook into the world of nature, or the mediæval apprehensions of beauty, were the same as those of the Greeks. They were, of course, in many respects so widely different that in some aspects of the matter we might almost conclude that there was nothing in common between them. The Greek demanded physical beauty. In drawing his material from nature he rejected all that was not outwardly beautiful.

FIG. 172.

Selection with him was an inborn principle and a constant habit. The mediæval French artist, on the contrary, saw the beauty that may coexist with imperfection; and, although he also exercised a spirit of choice, this spirit was of a more penetrative nature, and had a correspondingly wider range. But in understanding of the form chosen, and in apprehension of just that treatment of it which the ends of plastic art demand, there was the closest similarity between the Phidian sculptors and those of the Ile-de-France in the thirteenth century. It is this which gives the likeness to Greek art that we recognise in the sculpture of the portal of the Virgin; but it is only in form that this tympanum is of such high excellence. The expression of the lintel of Senlis is by no means equalled in this design.

Rather finer in spirit, as well as in quietness and breadth of treatment, are the sculptures, representing the Last Judgment, of the tympanum of the central doorway. Indeed, there is hardly another tympanum of the time in which such charming sculpture so happily embosses a field of stone. Viewed broadly its effect as an enriched surface is most admirable. Taken in detail there are, in this design, figures of unusual beauty in which fine form and execution are displayed with remarkable temperance and grace. Most noticeable, for instance, are the majestic angel in the central compartment, who holds the balance for weighing souls, the figures in the upper compartment, on the right and left of the Saviour, who hold the instruments of the passion, and, for their freedom of movement, which yet is enough restrained to accord harmoniously with the general quietness of the whole design, the figures rising from the graves in the lower compartment. In comparison with these the figures of the Judgment in the tympanum of the central doorway of Amiens are coarse in conception and treatment. In such comparison these last impress the beholder rather as hasty, though grand and impressive, sketches in stone than as finished sculptures.

Passing to the works of the second half of the thirteenth century, we have an elaborate example, dating from about 1257, in the door of the south transept of this same cathedral. It may be noticed in passing that constructive propriety is not strictly observed in this doorway. The archivolts are not sustained by shafts and capitals, but in place of shafts four slender mouldings rise, without imposts, to the crown of the arch. In this and other respects this portal belongs to a class of constructions which at this epoch first introduced the elements of decline into Gothic architecture. And in addition to this the statues which adorn these jambs are now placed in the niche-like intercolumniations, and have a degree of independent character which is in contrast to the stern architectural submission of the statues of the earlier times.

The subject of the sculptures in this tympanum is the history of St. Stephen. They contain much beautiful carving—figures of life-like freedom, technical excellence, and refined finish; but the design is somewhat scattered,

and the action a little confused. The sculptor, moreover, has become in a measure conscious of his art; and mingled with thought of his subject there is an apparent desire to display his skill. To the mind of the spectator is suggested something akin to the feeling produced by a *tableau vivant.*

Returning now to the consideration of statues ranged against the jambs, or placed upon the dividing pillars[1] of the doorways, one of the finest of the early part of the thirteenth century is the statue of the Virgin upon the dividing pillar of the south door of the west front of the Cathedral of Amiens. As I have already remarked, the artists of the early thirteenth century were able to give more freedom and natural modelling to such figures than had been the case with those of the preceding century, and yet to maintain in them a strictly architectural character. In this Virgin of Amiens the archaisms of Chartres and St. Denis give place to a more natural treatment. The head is well set, the features are regular and perfectly cut, the wimple falls in graceful lines upon the shoulders, the pose of the body is unconstrained, though very quiet, and the simple draperies are cast into easy folds. Few examples of mediæval art exhibit more calmness, or more sweetness of expression.

More strikingly graceful and queenly in bearing, though still temperate in conception and treatment, is the statue (Fig. 173) of the Virgin in the portal of the north transept of Paris. In the earlier Gothic statues, as a rule, the weight of the body rests equally on both legs, keeping the shoulders level, and producing a formal cast of draperies, as in Figs. 168, 169, and 170; but now, as in this figure, an easier posture is assumed. Resting mainly on the left foot, the lower part of the body is thrown slightly to the left, while the right knee is naturally a little bent, the right arm and shoulder a little lowered, and the head inclined a little to the right. The subtle mingling of simple nature and skilful art in this statue is especially shown where a portion of the mantle is cast over the left arm, and falls vertically in a heavy fold to the foot of the figure.

[1] After the eleventh century the principal portals of great monastic and cathedral churches were commonly divided into two openings by *trumeaux*, or pillars of stone, affording place for sculpture, which consisted usually of a statue with more or less subordinate carving.

A line is thus obtained of twofold value in its sympathy with the upright lines of the architecture, and as a contrast enhancing the beauty of the curves. This, or some kindred artifice, is indeed as old as the history of sculpture, having been employed, in one form or another, in innumerable draped statues of antiquity. But it is here employed with a spontaneous sense at once of beauty, and of truth to nature, without any approach to affectation, and hence with admirable effect.

FIG. 173.

If we now pause to consider what had by this time been accomplished, and reflect that in Italy Giotto was yet unborn, that the sculptures of St. Denis and the west front of Chartres antedate, by nearly a century, the art of Niccola Pisano, and that a considerable time was yet to elapse before Italy should produce a figure equal in beauty and perfection to this Virgin of the transept of Paris, we can hardly fail to be impressed with a new sense of the remarkable character of the Gothic schools of France, which at this early date had reached so high a state of development.

This Gothic sculpture is further remarkable as being the first art which the world had seen in which expression as a motive predominates over form. It can, perhaps, hardly be said that the sculpture of Greek antiquity was always wanting in expression; but it is generally true that such expression as it had was subordinated to the quality of corporeal beauty. By expression

I mean more or less indication in face, movement, or attitude, of some thought or emotion. We may not be always able to read the intended thoughts or feelings with precision; but we are, in the best Gothic sculptures, impressed with a sense that the minds of the personages represented are in some way definitely exercised. And often we can divine almost with certainty the nature of the thought or emotion with which the artist endeavoured to animate his figures. What we have seen in the lintel of Senlis is but a conspicuous instance of what is in some measure apparent in most of the works wrought by Gothic hands.

And this development of expression as the chief motive of the art is, indeed, the natural outcome of the mediæval, as compared with the ancient, genius of the Christian as opposed to the pagan idea of humanity. In the arts of the earlier ages of Christianity this characteristic hardly appeared, perhaps because the requisite skill to produce it was wanting. Gothic sculpture was, indeed, the first Christian art to attain the technical advance required to enable it to become a medium of varied expression.

But though the expression of character was the leading motive of Gothic sculpture, it does not follow that bodily beauty was ignored by the Gothic artists. The production of such beauty was distinctly one of their aims, yet, since in the Gothic ideal physical perfection did not count for everything, many imperfections were admitted into a composition, and skilfully subordinated to a general scheme of beauty. The idea that this art was generally animated by an ascetic spirit which was incompatible with beauty is a misconception. The Christian doctrine of self-abnegation did not, with the lay artists of the Ile-de-France, at all preclude the joyful contemplation of all that was regarded as becomingly fair; and though, in the representation of terrestrial beings, beauty was often associated with deformity, the illustration of conceptions of the supernatural led often to the production of very exquisite types of beauty. But the mediæval motives were so different from those of pagan art that there could be little likeness between the respective forms produced. The Christian sentiment naturally excluded everything that savoured of bodily charm alone; it demanded a fitting modesty

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and sobriety; and it, as a rule, admitted the clothed form only.

The representation of physical beauty being, with the Gothic carver, subordinated to the purpose of enforcing the idea that the soul is more than the body, and of illustrating the doctrine of the salvation of the soul by goodness of life, and the loss of the soul by evil life, it was necessary that beings and things not beautiful should enter into his compositions. The evils that beset the lives and tempt the souls of men had to be in some way set forth, no less than the good things which he is permitted to enjoy. The unhappy lot of the wicked had to be figured as well as the felicities of the good. Hence conspicuous elements in Gothic sculpture, especially after the beginning of the thirteenth century, are the monstrous and the grotesque. Elements which, in true Gothic—though sometimes, perhaps, introduced in a playful spirit,—have, in the main, a serious purpose. And these elements have a value apart from their moral significance, as affording contrasts to the forms of beauty.

The Romanesque imagery—consisting of those fantastic creations of animal life which reflected something of the Roman mythology, combined with forms originating in the grotesque imagination of the Northern races—was soon rejected by the Gothic artists, and in its place motives for ornament were employed which were mainly derived from plant forms.

In the early Gothic the representation of imaginary creatures was, for the most part, confined to the symbolic animals described in the Bible, such as those seen by St. John in the Apocalypse. Instances of these occur on the tympanums of the central doorways of Chartres, Le Mans, and elsewhere. These symbolic creatures were employed as signs of the four Evangelists,[1] but gradually other imaginary creations were introduced, until finally the animal life of the Gothic edifice became more extended in range than that of the richest Romanesque building had been. But during the twelfth century this range was not great.

In the thirteenth century, however, a new fauna was created, which derived much, perhaps, from the old conceptions, but which had also so much that was new as

[1] See Viollet-le-Duc, *s.v. Animaux*, p. 20.

to constitute a different class from what had preceded. A popular belief had long existed in the symbolic character of animals and imaginary creatures;[1] and as symbols of human qualities, both good and evil, they were now wrought, for encouragement or for warning, upon the stones of the sacred edifice. A further purpose of this fauna, joined with that of the flora, and with the vast range of human life, both natural and supernatural, was that the Gothic edifice might form a compendious illustration of the known world of creation, imagination, and faith.

A remarkable quality of the grotesque creations of Gothic art is the close and accurate observation of nature which they, no less than the images of real things, display. However fabulous the imaged creature may be, the materials out of which he is made are derived from nature. Whether it be vertebra or claw, wing or beak, eye or nostril, throat or paw—every anatomical member displays an intimate familiarity with the true functional form, and an imaginative sense of its possible combinations with other members. Take, for instance (Fig. 174), one of the grotesque creatures which play among the leafage under the hood-mould of the archivolt of the portal of the Virgin in the Cathedral of Paris, or one of the gargoyles of the lateral façades, or of the terrible beasts and demons of the parapet of the west front, and see with what vitality it is imbued.

And besides functional truth there is always a subtle and highly ornamental play of lines and surfaces in these fanciful creatures. There is, too, in early Gothic a comparative restraint of posture and movement in this animal life, as in everything else. Contorted forms and extravagant writhings belong mostly to the times of the declining Gothic, when such extravagance appears in obedience to the demands of jaded sensibilities.

With the figure sculpture of French architecture is associated a rich profusion of carved leafage which, inwrought with the leading structural members of the building, softens and enriches its rigid lines, hard angles, and blank surfaces, with a beauty akin to that which clothes the hardness of the framework of the earth.

[1] See the *Mélanges d'Archéologie* of Cahier and Martin, tome i. p. 106, *et seq.*

The carved ornaments of the Romanesque builders had been, for the most part, derived from ancient conventional designs as exhibited in Roman and Byzantine art. In France these motives had been wrought over and modified,

FIG. 174.

sometimes clumsily, and again with much ingenuity and even lively fancy, but with little real invention. Fresh motives, however, appear at an early date—the inspiration of nature transforming the conventional elements, and soon imparting to them a living expression of a kind peculiar to Gothic art.

The Cluniac sculptors of Burgundy appear to have been

the first to break away, in some measure, from lifeless traditions in the carving of leafage. The capitals of the porch of Vézelay, begun in 1132, and those of the nave of the nearly contemporaneous Cathedral of Autun, distinctly exhibit, in the acanthus-like foliage with which they are

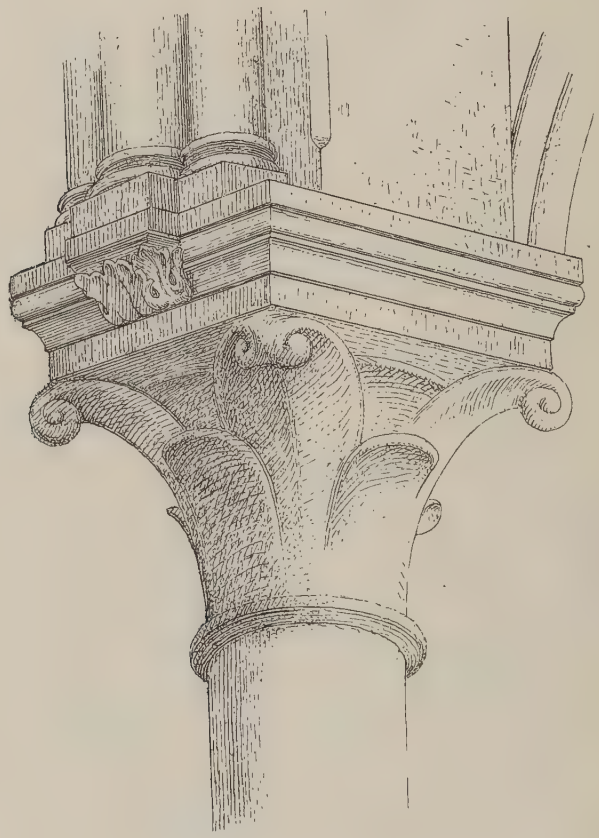

FIG. 175.

adorned, the fresh influence of nature, while, at the same time, they retain a large measure of the old conventional character. But it was reserved for the artists of the Ile-de-France to develop the art of foliate sculpture in complete emancipation from the old and outworn conventions.

In the capitals and other carved members of the early transitional buildings of France two leading types of Roman-

esque ornament appear—the interlacing patterns of mingled Byzantine and Norman origin, and the conventional Corinthianesque leafage. To these may be added a third, of less frequent occurrence after the beginning of the new style of architecture, consisting of figures and grotesque animals. The interlacing patterns, incapable of further and more living development, soon fell into disuse. The ornament consisting of figures and animals was also soon abandoned. But the Corinthianesque leafage naturally lent itself to those amplifications and transformations which the suggestions of nature soon prompted the French carvers to effect.

FIG. 176.

The earliest remaining instances of ornament in which the influence of nature is apparent occur in the choirs of the Cathedrals of Noyon and Paris. The capitals of the great columns of the sanctuary of Noyon (Fig. 175) may not appear to exhibit a very striking likeness to nature in their broad and simple leaf-like forms ; they are, indeed, but refinements upon a characteristic early Norman type, like Fig. 176, from the Abbaye-aux-Dames, in which the expression of nature is not strongly marked. But the qualities of line and surface, which render them superior to the Norman example, are qualities derived from nature. The vigorous curves and fine surface flexures which they exhibit are with-

out parallel in the older carvings wrought by workmen who derived none of their inspiration directly from living things.

The Norman example appears to be a rude simplification of the Roman-Corinthianesque type—a simplification in which the subdivisions of the acanthoid leaves are omitted. The Noyon capital has a superior grace and beauty, and shows something of the best qualities of the ancient leaf forms, though its immediate prototype is the Norman rather than any ancient example.

This Corinthianesque type of capital became at once the leading type in Gothic architecture, and almost countless varieties of it were wrought in the Ile-de-France during the twelfth and thirteenth centuries. The outline of the leaf was soon changed from the form A, Fig. 177, which is that of

A B C

FIG. 177.

the Noyon capital, to the form B, one more in conformity with the ancient acanthoid leaf C. Fine examples of the simpler types of such capitals occur in the triforium of the nave of Senlis (Fig. 178), in St. Julien-le-Pauvre, at Paris, and in other early churches.

In none of the earliest capitals does the influence of nature do more than give a new and more vital beauty to the curves and the modelling of motives that are, in all their parts, derived from ancient forms; but very soon the more direct study of nature leads to further changes. The naturalistic elements extend beyond mere abstract lines, and include something of specific forms. Thus in the triforium of the choir of Paris the crockets of certain capitals (Fig. 113) terminate in unfolding leaflets which, though of a severely conventionalised character, are yet unmistakably drawn freshly from the fields. This sculpture dates from the third quarter of the twelfth century, and the same

motive is often repeated, but never without some change. The triforium of Paris alone exhibits a wide variety of designs in its capitals—some of them retaining more of the older characteristics, but nearly all showing something of the new spirit that was at this time so strongly animating the art, from the largest structural forms down to the smallest ornamental details.

FIG. 178.

In the nave of the same building the influence of nature is still more distinctly marked. In the triforium, which dates from about 1190, are capitals which may be considered as marking the culminating point of Gothic art in both sculptural beauty and structural form. The general type (Fig. 114) is so varied that no two capitals in the arcade are in all respects alike. I have already[1] referred to the variety of the profiles of the abaci of these capitals. The variety in the foliate ornament is still greater. The crockets,

[1] Page 207.

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of which five examples are given in Fig. 179, are of exquisite beauty. The inspiration of nature has, in these designs, completely taken the place of traditional motives. No mere recasting of old types could ever result in the production of forms like these. The unfolding leaves of the field or forest could alone supply the elements.

But it required genius of a high order to lay hold of these elements without, at the same time, becoming entangled in a myriad of details that were unsuitable to the purposes of architectural sculpture. To simplify nature, and yet to retain what is most expressive, to bring out in sculpture the

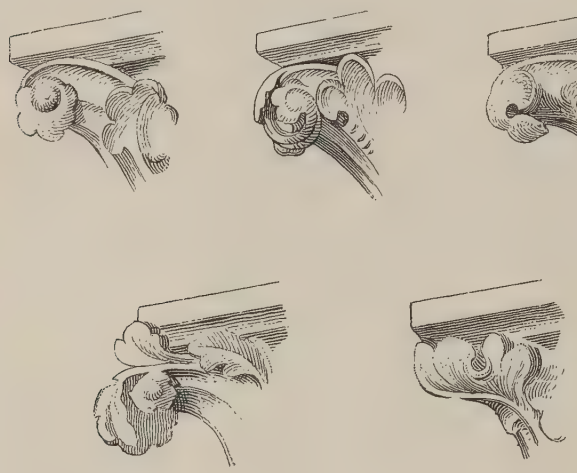

FIG. 179.

full value of what nature suggests, and at the same time to preserve a strictly lithic and architectural expression, is something that has never been done, before nor since, so perfectly as it was done in the art of the French sculptors of this time, as we see it in the triforium of the nave of Paris, and in a few other monuments of the same class. The Gothic carver of this time never imagined that he was called to emulate with the imperfect means of art the infinite complexity of nature. To win applause by imitative dexterity was not his aim ; but to catch a new grace from expanding bud or broad leaf-outline, his fancy and his eye were ever ready, and his hand ever skilful.

In this sculpture is always manifest the feeling with

which the work was done—a feeling of delight in natural beauty as exhibited in the least forms of vegetation no less than in the forms of men and animals; and this feeling appears now in its fulness for the first time in the history of the arts. The ancient regard for lower nature, as far as the witness of art attests, was far more limited and was subordinated to interest in the human form. Special attention to the beauties of vegetation, or any definite expression of delight in them, will, as a general rule, be sought for in vain in the arts of antiquity. Antique foliate ornamentation is usually cold and formal in its studied curves and surfaces; but in this Gothic foliage a warm sympathy with every varying beauty of living form is constantly apparent.

It is interesting to notice that the plant forms first employed for ornamental motives were those of springtime—the opening buds and newly-formed leaves of familiar plants, fern, arum, hepatica, plantain, and many others. It was both natural and appropriate that this spring herbage, more than anything else, should stimulate the fancy of men in whose hands the Gothic style was growing; for in the leafage of spring there is an expression of living energy that accords, as nothing else could, with the vital spirit of the new art of building.

To his subtle feeling for nature and wise acceptance of the limitations of art, the French carver joined the highest excellence of execution. The skilfulness of his hand was not the least of his qualities; and it was employed by him as fully in foliate as in figure sculpture. The skill and delicacy of hand exhibited in the work of a great artist have a noble fascination, arising from the feeling and intelligence which direct every touch. The finest sculpture, like the finest painting, is always delicately wrought. The ornaments of the capitals and archivolts of the portals of Paris, for instance, are cut with a delicacy equal to that of the frieze of the Parthenon, or the shrine of Orcagna.

The fine characteristics of the art are exhibited in the capital, Fig. 114, in which the carver's sympathy with nature, his power of abstraction and adaptation, and his skill in execution, are fully manifest. The Corinthianesque motive is still clearly apparent, though the entire form has

become modified and the ornament changed. The ornamentation consists of four great compound leaves rising against the bell, one under each angle of the abacus, with four lesser leaves in the intervals. The grooved mid-ribs of the greater leaves terminating in crockets form vigorous springing curves which, rising from the astragal, seem by their inherent energy to support the corners of the abacus. The forms of the leaves are simple, each consisting of a central member with a five-lobed leaflet on each side of it. In outline they are full of the spirit of nature without direct imitation of real leaves, and though symmetrical in form and arrangement, they are not rigidly so. In Gothic art symmetry is never absolute, as in a geometric figure. It always exhibits irregularities which give to every part of the form treated a living expression. In modelling this ornamentation presents surfaces which afford pleasant gradations of light, while the deep depressions and intervals produce effective lines and spaces of vigorous shade; there is no deep cutting anywhere, nor any excessive projections; the form of the bell is strictly preserved and clearly apparent; no unmodelled masses nor unfinished contours anywhere appear—every ridge is smoothly rounded, and every furrow carefully hollowed. This extreme refinement of finish does not always appear in Gothic sculpture, though it is characteristic of the best. In the Cathedral of Paris, in the parts that belong to the early thirteenth century, it appears everywhere.

As we approach the west end of the nave of Paris there is a marked increase of direct likeness to nature in the foliate ornamentation, until the limit of naturalism consistent with architectural fitness is almost overpassed in the Chapel of the Catechists in the South Tower. Here, in the south-east angle, the vaulting shaft has a capital (Fig. 180), in which actual forms are represented with close approach to exactness. It is hard to qualify our admiration for so beautiful a work, but certainly this ornamentation is not, so much as that of the former example, an integral part of the capital. It has somewhat the effect of real leaves laid up against the bell. The undercutting is so deep that a look of detachment is produced which impairs the solid, monumental expression so desirable in a capital. The leaf repre-

sented is apparently the same as that which supplied the motive for the capital of the triforium, but in place of the treatment whereby the foot-stalks of the leaflets there become

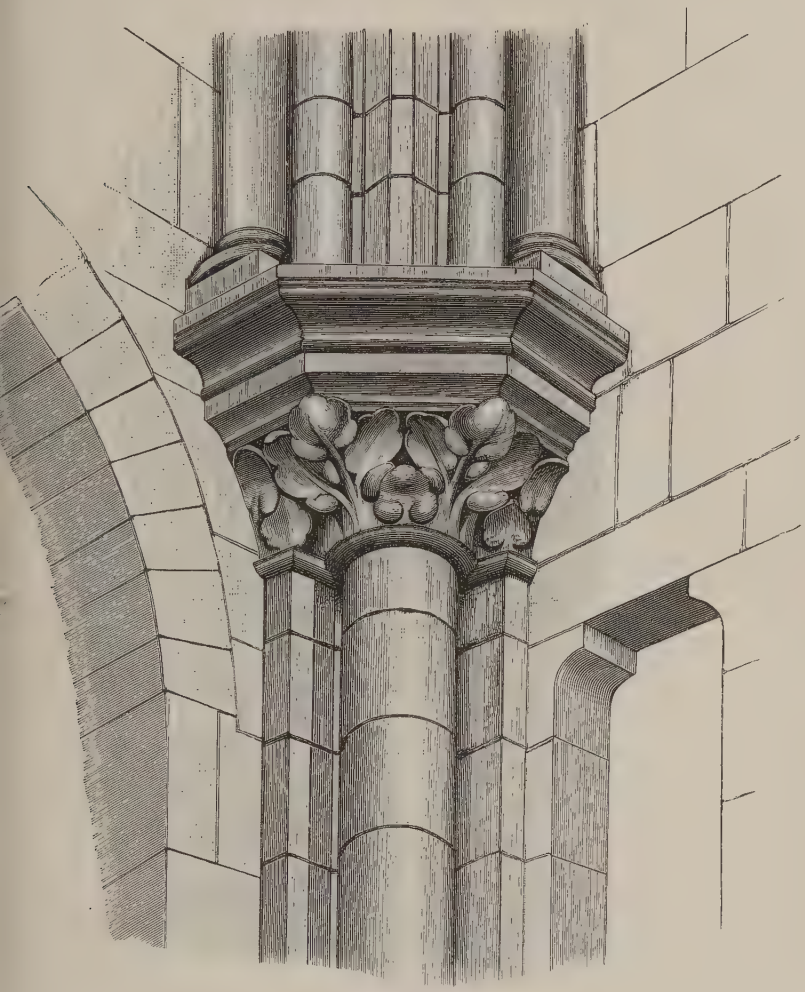

FIG. 180.

mere mid-ribs in broad lobate leaves, the independent foot-stalks are here given, and are wrought with almost natural slenderness, the stone being deeply cut away on either side of them. But apart from this momentary and partial forget-

fulness of monumental exigencies in enthusiasm for natural beauty, this sculpture, as much as any other in the building, exhibits the peculiar merits of the best work of the time.

Among capitals which, though less finely wrought, show great beauty and variety of naturalistic design, are those of the Cathedral of Laon, of which Fig. 115, from the triforium of the south transept, is one of the most characteristic. The

FIG. 181.

variety of beautiful designs to be seen in this triforium almost exceeds that of all other churches except Paris. They invariably show a keen enjoyment of nature, and wonderful skill in the adaptation of naturalistic motives. The types are quite distinct from those of Paris, but they are hardly inferior to the finest of those which that cathedral presents.

Passing to the foliate sculpture of other members, the running leaf patterns of the archivolts of the façade of Paris are conspicuous examples of the very finest. A portion of

one of these is shown in Fig. 174; and Fig. 181 is another bit of great excellence.

In the triforium string-course (Fig. 182), and the cornice of the exterior of the nave (Fig. 182 *bis*), of the Cathedral of Amiens, the compound trefoil ornament is noticeable for its beauty of outline, which is natural and ornamental at once, while its finished and exquisite modelling, to which no words can do justice, renders it especially worthy of study. When we come to examine the foliate sculpture of other countries, we shall find this among the most instructive examples for comparison. The finished hollowing

FIG. 182.

of the lines which mark the larger veinings, and the refined modelling of surfaces, are in strong contrast to what is generally found elsewhere than in France. Every leaf is full of living expression, and throughout the entire length of the string there is no repetition, no formality of design. The dull reproduction of formal patterns, such as are often met with in more recent design, finds no counterpart in the art of the Gothic schools. A further quality of this, and of all other fine ornament, is the orderly and sequent arrangement of even the smallest details, as in the bunches of berries that alternate with the leaves of this string-course. It will be seen that the berries fall into regular series, following the spiral arrangement around the supporting stem which is characteristic of nature. We have here

another illustration of that kinship to Greek art which this sculpture shows in so many other points. Such order as this appears, indeed, under an almost infinite variety of forms, and it is sometimes but obscurely manifest; but in one way or another it is a constant law alike of organic nature and of good art. In Greek and Gothic art it is invariably conspicuous.

Such are some of the leading characteristics of French foliate sculpture. Its finest types, illustrated by the capitals of Paris and the string-courses of Amiens, hardly appear after

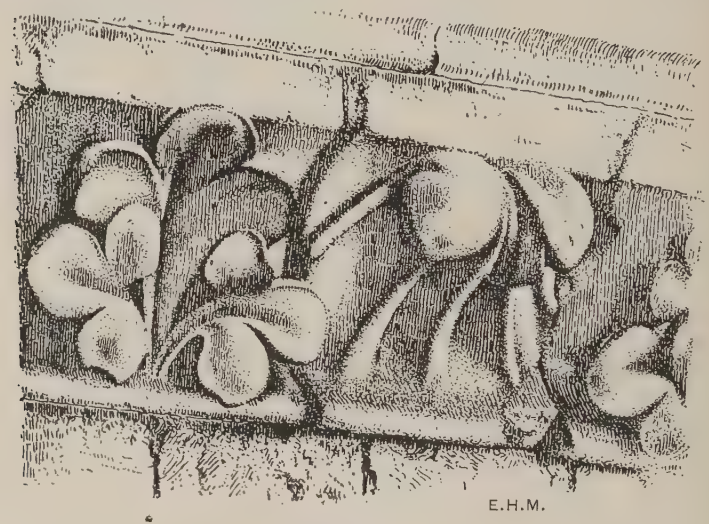

FIG. 182 *bis.*

the second quarter of the thirteenth century. From this time onwards the direct imitation of nature becomes too much the artist's aim, and architectural adaptation is more and more lost sight of. A few illustrations of the change from the one condition to the other may afford a better understanding of the qualities which characterise the finest types.

Fig. 183, a portion of a string-course from Noyon, shows in a marked degree the tendency to over-naturalism which had set in by the middle of the thirteenth century. There is great beauty in this design, and its execution is excellent, but it has lost the architectural appropriateness that characterises the strings of Amiens. A proper sense of

the abstraction, in treatment of nature, which the material demands was wanting in the mind of the carver. The close relation, too, which had formerly existed between structural members and their carved ornaments, soon ceased under the naturalistic treatment that was now coming into vogue. In Fig. 119, p. 209, a capital from one of the chapels of the choir of Amiens, for instance, the leaf ornament which adorns the lower part of the bell has no expression of integral relation with it. It is merely a leaf applied to the surface. It does not rise from the astragal in sympathy with the form of the bell, enriching its surface, and harmonising with its outline.

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FIG. 183.

The bell is treated as an independent surface, a considerable portion of which is entirely unoccupied by the ornament, and the independence of the leaf is further emphasised by the imitative treatment of its foot-stalk, which shows, at its base, the natural enlargement, and the portion of clinging fibre which adheres where a leaf is torn from its parent stem.

Other instances of misadaptation and over-naturalism marking departure from the best types of Gothic sculpture, are those of the leaf ornaments upon the lower portions of the twisted shafts of the porches of Chartres. And finally, as among the still more pronounced examples of over-naturalism which occur before the time of what may be called debased Gothic (such as some of the capitals and

cornices of Nevers exhibit), we may notice the delicate running ornaments (Fig. 184) in the archivolts of the Porte Rouge of the Cathedral of Paris.

There is thus a marked difference between the adapted naturalism which gave life to early Gothic ornament, and

FIG. 184.

the imitative naturalism which marks the decline of Gothic art.

How, it may be asked, are we justified in ascribing to this early Gothic ornament such supreme merit? Why is it, if the influence of nature adds anything of value to art, that direct and complete imitation, so far as possible, is not good?

How can there be any such thing as over-naturalism in sculpture? What, more precisely, is meant by the expression architectural fitness so frequently made use of in these pages? The answer was shortly given in Chapter I. p. 23, where it was remarked in substance that the conventions of ornament grow out of obedience to the inherent conditions of architecture and the materials of which buildings are wrought. A true artist in ornamental sculpture is known by his ready recognition of these conditions, and by his unqualified and willing acceptance of them.

A stone leaf, for instance, he feels must be confessedly of a stony character; and rather than lose anything of this appropriate character, he will not in his carving approach anywhere near to an imitative rendering of natural forms and details. All deep undercutting and all finer veinings he instinctively omits. He has to regard, moreover, what will be the effect of his work upon the eye when viewed, as an architectural feature, at a greater or less distance. Hence, by mere obedience to these and other conditions which govern the art, ornamental sculpture becomes unlike nature, though it may owe its highest beauty to elements derived from the woods and fields. It is from just regard to all the conditions involved, and not from any arbitrary purpose, that the conventional character of Gothic sculpture results.

In Chapter I. the quality of breadth was mentioned as among the leading characteristics of Gothic sculpture. This ought to be emphasised, for there is no quality to which more of the impressiveness of such sculpture is owing. Multitudinous as are the details which enter into the design of any great cathedral front, there is rarely any scattered effect in the total impression. An harmonious relationship of mass to mass, from largest things to smallest, is maintained. Such breadth is, indeed, a fundamental quality of all good art; but its manifestation is perhaps more remarkable in Gothic architecture than in any other, because of the multitude of subdivisions through which it has to find expression.

The attainment of this breadth by the Gothic designers is the more remarkable in view of the individual freedom of the vast armies of men who were employed upon the

mediæval buildings. Of this freedom there is evidence enough in the work itself. The range of invention in the designing of figures and ornaments is, in any given building, far too wide to have been compassed by any single mind. There was, of course, a master builder, or architect, whose general directions were followed, but there was no individual who, like a modern architect, strictly determined every detail.

The conditions were all different from those of modern times. The bands of laymen, by whom these great buildings were wrought, and who, at this period, went about from place to place wherever important architectural works were to be undertaken, had, in the first instance, been trained in the monastic art schools. In these schools they had learned not only their craft, but also how to work together for common ends. There existed among them a strong *esprit de corps;* and each individual in the fraternity felt the ardour, the pleasure, and the freedom in his work that are inspired by mutual confidence and a common enthusiasm. So perfect was the concord of feeling, so imbued were all the members with the general principles of the art, that individual freedom had no tendency to produce insubordination in design.

The art schools of the Middle Ages were such in the truest sense. Nothing akin to modern academic methods existed in these schools. They were strictly schools of practice, where the novice learned his art by taking part, according to his capacity, in the actual construction and adornment of buildings. He was, of course, taught by his seniors such general principles as had been acquired by tradition, or derived from experience ; but fresh experiment ever afforded fresh instruction to both pupil and master. A great public monument in progress formed naturally and unconsciously a true school of art. And so far as concerns artistic production no other kind of school has yet proved of much avail.

One conspicuous element of effect in the sculpture of the Middle Ages is now entirely lost, and hence the aspect of even the best preserved examples remaining is very different from that which it must have originally displayed. The colour with which these sculptures were formerly enlivened has wholly disappeared, with

exception of some faint traces in sheltered portions which serve to show that colour was, beyond question, extensively employed. Such traces remain in the portals of Senlis, Paris, and many other churches. But although colour was undoubtedly employed, there is nothing to indicate that it was carried to the extent of producing any imitative effect. The patches of colour still to be seen show, on the contrary, that it was employed merely to afford a pleasant play of quiet hues such as might relieve the monotony of the uniform stone and satisfy the mediæval craving for colour harmonies. It is impossible that anything more than this should have been accomplished; for the art of painting was not, at this time, enough developed to admit of realistic treatment.[1] Judging from the character of this painting, the colouring of the sculpture must have been very simple. The heads, hands, and feet were of a uniform yellowish-white, the cheeks and lips being slightly reddened. In the eyes a pale blue or brown colour may have been given to the iris, the pupil being black. Hair and eyebrows were black, brown, or golden; and draperies were of various hues, mostly red, blue, and purple, with white and black, while ornaments, as jewels and embroideries, were gilded. Foliage and animals were coloured in a purely conventional way, as in the ornamental borders of illuminated manuscripts, without regard to the colouring of nature. Such naturalistic colour treatment as that of the sixteenth-century choir screen of Amiens Cathedral was not only impossible, but it would have greatly offended the taste of the early Gothic sculptors.

Certainly no correct conception of the original colouring can be formed by reference to any of the styles of painting that have been practised since the thirteenth century.

[1] See the Chapter on Gothic Painting and Glass-Staining.

CHAPTER VIII

SCULPTURE OF THE TWELFTH AND THIRTEENTH CENTURIES IN ENGLAND AND OTHER COUNTRIES

In the architecture of the twelfth century in England figure sculpture is rarely met with, and where it does occur it is of an extremely rude and inexpressive sort, though it exhibits some architectural merits derived from the traditional principles that were common at this time to the whole of Europe. The French custom of enriching the portals of churches with figure sculpture was not generally followed in England. The difference, in this respect, which is shown by the contemporaneous western portals of the Church of St. Denis and Lincoln Cathedral holds all through the Gothic period.

Among very early examples of figure sculpture in England is the band of bas-reliefs which extends across that portion of the west front of the Cathedral of Lincoln which was erected under Remigius about 1090. This sculpture (a group from which is shown in the rude sketch, Fig. 185), though coarse in execution and wanting in expression, has, nevertheless, a good deal of that merit which secures architectural effectiveness. The same architectural character appears in the later and richer sculpture which occupies the tympanum of the so-called Prior's Gateway at Ely, but as compared with contemporaneous work in France the sculpture of Ely is singularly coarse and ungraceful.

Hardly anything of greater importance occurs until towards the middle of the thirteenth century, when suddenly, in the west front of the Cathedral of Wells, we get one of the richest assemblages of sculptures ever gathered into an

architectural monument. These sculptures of course differ widely from the earlier ones just mentioned. They appear to have been wrought by an insular and even a local school, yet one that must have had acquaintance, and perhaps connection, with the schools of the Continent. A good deal that is admirable appears in these figures, though they fail to show either the artistic power, or the fineness of execution that characterises the Gothic sculpture of France. Unlike proper Gothic sculpture, this sculpture has little relation to the structural forms of the building. It is not an auxiliary the place and dimensions of which are determined by the architectural scheme. It does not naturally fit itself into the leading members of the structure. The jambs, archivolts, tympanums, string-courses, and set-offs of the buttresses are everywhere crowded with arcades and panellings which form canopies and frames for its especial display. The structure exists for the sake of the sculpture, and it is, as we have before seen, but a vast screen, having no logical connection with the main building which supports it. In order to enlarge the space for the sculpture the doorways are reduced in size even beyond the usual contracted dimensions of doorways in England. The springing of the archivolts of the central portal is below the level of the base mouldings of the wall, and the capitals of the jambs are within easy reach of the hand. Every relation of ornament to structure, such as is peculiar to Gothic, is disregarded.

FIG. 185.

Yet the sculpture itself is both grand and impressive, and it sometimes attains considerable beauty. It differs primarily from the sculpture of the Ile-de-France, in being more exclusively naturalistic. That is to say, the idea of nature, as a leading motive, seems to have had a larger place in the mind of the artist than was the case with the French

designer, while a disciplined artistic power is less apparent. But though more exclusively naturalistic in conception than French sculpture, the rendering of forms is not more true to nature. It is not so true. The modelling of draperies, for instance, in the so-called statue of Christiana (Fig. 186) is much less true to the folds of real drapery than is the modelling of the draperies in the contemporaneous statue of the Virgin in the doorway of the north transept of the Cathedral of Paris; and yet the whole air of the figure is naturalistic rather than ideal. In truth and skill of modelling even the sculptures of Chartres and St. Denis, which are a century earlier in date, surpass these of Wells. Observe, in Fig. 186, the flat surfaces, sharp edges, and unnatural lines of the draperies on the breast and arms, and the stiff and awkward forms of the arm and hand. Stiffness and awkwardness, arising from want of skill, are not, indeed, in early art incompatible with a great deal of beauty and with fine sentiment. In the early art of France such defects are sometimes apparent; but this sculpture of Wells is not early. It dates from the mid-thirteenth century—the time of the highest development of Gothic sculpture—and for that time it is strangely primitive and unskilful as compared with the art of France. Yet for simplicity of motive, veracity of conception, and monumental grandeur, this sculpture certainly deserves to hold an eminent place in the art of the Middle Ages. It bears somewhat the same relation to the sculpture of France, that the painting of Velasquez has to

FIG. 186.

that of Titian. It is vigorous and noble, but rarely to the same degree refined and beautiful. The workmanship is comparatively coarse and sketchy, and far removed from the delicacy of French carving. The best parts of these statues are the heads, which, for the most part, more finely wrought than other parts, display much individual character. They are apparently real portraits of living men, and as such possess an interest independently of that which their other qualities give. Taken as a whole, this sculpture of Wells lends an unique impressiveness to the façade with which it is associated ; and, faulty as both are, they constitute a monument which must always rank among the grand achievements of art.

Perhaps the sculpture next in importance in England is that of the Presbytery of Lincoln, which dates from the second half of the thirteenth century. Within this building the spandrels of the triforium are enriched by figures of angels in high relief, from which the structure is commonly known as the Angel Choir. The situation is a bad one for the display of the work. The sculpture is so high above the pavement as to be seen with difficulty, both on account of its distance, and because the width of the aisle is not sufficient to allow it to be viewed otherwise than very obliquely. The light, too, falling from the opposite clerestory, is, for each relief, directly in front—the worst light possible for the exhibition of form. This sculpture, though important as occupying a conspicuous position in one of the most elaborate of Anglo-Norman pointed buildings, has, I think, no considerable merit, notwithstanding that it has been extravagantly praised.[1] Several of the figures appear to be symbolical, though their precise meaning is uncertain. Most of them are represented as playing on musical instruments. The south door of this presbytery—which has more of the character of a French Gothic doorway than is common in England—has in its tympanum more effective sculpture, though it is too much mutilated to admit of a satisfactory judgment of its

[1] Mr. Cockerell, in the Appendix to his *Monograph on the Sculpture of Wells*, says : "The sculpture of the angel choir is displayed (*sic*) with most admired learning and taste, and may not only challenge, in these respects, the works of sculpture or painting of any country in the thirteenth or succeeding century, but will possibly be found to establish a priority of merit in the English school, hitherto little suspected."

original merits. Among the statues placed against the buttresses of the same cathedral, those of Edward I. and Elenor his Queen are noticeable for graceful composition and monumental character. I am not aware that there is any other architectural sculpture of importance in England dating from the thirteenth century. Of the statues which once adorned the west front of Lichfield not one remains, while those which occupy the niches high up in the spandrels and gables of Peterborough are too far out of sight to be judged of.

The rare employment of figure sculpture in connection with architecture, together with its inferior character when employed, mark no less distinctly than the structural characteristics already examined the wide difference which exists between Anglo-Norman and Gothic art.

The comparative lack of artistic gift exhibited by the figure sculpture is again strikingly manifest in the Anglo-Norman foliate carving. Though examples of much beauty sometimes occur, there was little, in the early pointed architecture of England, of that growth of beautiful types under

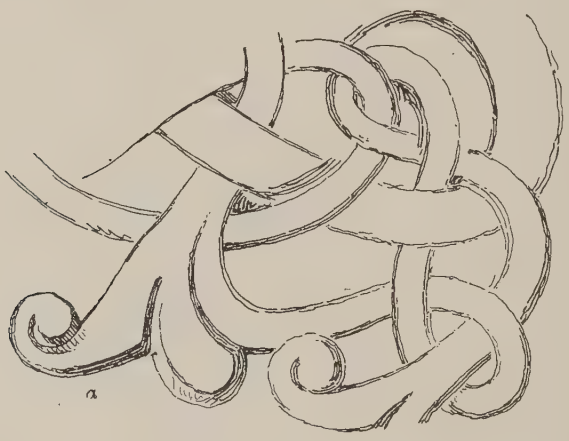

FIG. 187.

the influence of that regard for nature which so strongly marked the early Gothic carving of France. In many instances the observation of nature is, indeed, apparent; but a general movement characterised by a consistent, varied, and skilful adaptation of natural forms, and leading to

a new and living style of ornament, hardly had place in England. The early types in the island are conventionalised in a very different way from that in which French types are conventionalised. Anglo-Norman convention is artificial; it manifests a lack of sensitiveness to the finer characteristics of nature. Traditional elements—those which in the twelfth century were common in textile fabrics and painting, as well as in sculpture—were retained with less modification than they received in France. A carved lintel, now built into the wall of the north transept of Southwell, exhibits a traditional trefoil (Fig. 187), which will be recognised as agreeing in character with the commonest motive in so-called early English foliage. Of these traditional elements the Anglo-Norman designers made varied use, but such invention as they exercised never quite eliminated their artificial character. The so-called stiff-leaved foliage of the early times gives little evidence of a refined artistic sense modifying the conventional prototypes.

It is noticeable that the earliest foliate sculpture in England is the best, and among the finest examples are those of the capitals of Bishop Hugh's choir and transept at Lincoln. Of these none are better than that shown in Fig. 140, p. 225. Yet, notwithstanding its real beauty, the trefoil ornament of this capital exhibits some of the peculiarities that are constant in the early foliate sculpture of England, and which I have characterised as artificial. It will be noticed, for instance, that the mid-rib is a flat-sided, sharp-edged member, and that the edges of the leaflets are also sharp and hard; these peculiarities will be more clearly apparent in Fig. 188, where C is the form of the section through A B. This fillet-like treatment of leaf-ribs, stalks, and leaf-edges is unpleasing to the eye of a beholder who is familiar with the delicate rounding of such details in the sculpture of the Continent; yet, in contrast with the circular abacus and moulding profiles, it sometimes has good effect, though in itself it is an ugly mode of treatment whose hardness will be keenly felt on comparison with such work as that shown in Fig. 182, p. 277. To conventionalise naturally—to derive beauties of form from natural things, and while holding on to all that are compatible with the nature of stone and the exigencies of architectural

effectiveness, to avoid all that is incompatible, was not generally in the Anglo-Norman genius. When he did not conventionalise artificially the island sculptor copied nature too closely, as, at a later period, in the over-naturalistic carvings of the Chapter-house of Southwell. I must not, however, seem to affirm that the foliate sculpture of early pointed architecture in England was always devoid of the expression of natural beauty. At first it had a great deal of such expression. The ornament, for instance, of the capital, Fig. 140, p. 225, is, notwithstanding the artificial peculiarities which I have criticised, exquisite in expression of the spiral twist characteristic of living vegetation, of the springing leaf outlines, as they follow each other around the bell, and bend gracefully against the moulding of the abacus. There are many other beautiful varieties of ornament on the capitals of the early choir and transept of Lincoln in which an equal feeling for nature is manifest; but this feeling does not long survive in the schools of England, and its expression, even in the best examples, is always joined with those artificial peculiarities just noticed.

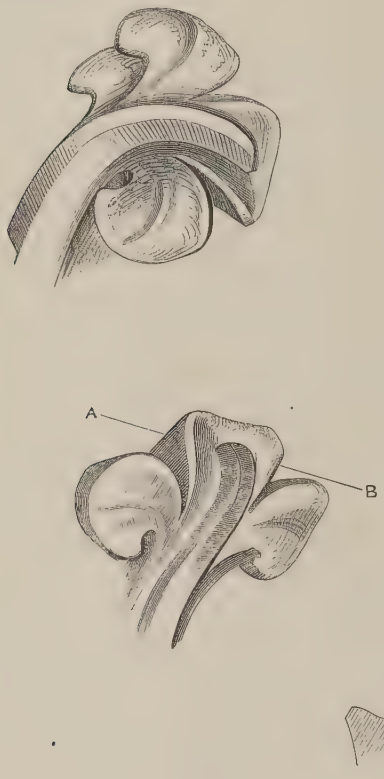

FIG. 188.

After the first quarter of the thirteenth century artificial characteristics become more conspicuous, and expression of beauty caught from nature is less apparent. A good illustration of the first steps of change is afforded by the leafage of the capitals of the triforium of the nave of the

same building, of which Fig. 189 is an example. Here the

FIG. 189.

foliage takes the form of crockets, which are largely independent of the abacus. Its lines are still in a measure

graceful and suggestive of the energy of vegetable growth, but the fillet-like ribs are unpleasantly multiplied, and the leaf-stalks, instead of dying away softly into the mass of the bell—as in the earlier capital of the east transept,—are equally salient and flat-sided down to the astragal. Of the fine surface modelling which the earlier foliage exhibits, there is scarcely any in this foliage of the nave.

In the local and exceptional school of Wells sculpture of peculiar beauty and natural expression is met with, in which a mingling of Anglo-Norman and French characteristics is apparent. The excessive projection of the crocket (Fig. 145) is Anglo-Norman, while the fine surface modelling and the delicate rounding of leaf-stalks and ribs, unlike anything usually met with in England, is French. The graceful, flowing, and thoroughly vital lines, the fine composition of curves and arrangement of masses, give these capitals remarkable beauty, though the extravagant salience of their crockets injures their expression as functional members.

The carving of imaginary and grotesque creatures, though by no means uncommon in England, was, like other sculpture, less general than in France. Nevertheless, examples enough occur to show that a lively fancy and a vigorous executive skill were often exercised in their production. Among the best carvings of this kind were, apparently, those of the buttresses of Bishop Hugh's choir of Lincoln. Very little, however, remains of them.

On the whole, sculptural enrichment in the pointed architecture of England presents no parallel whatever to that of France. To the builders of the island sculpture was not an indispensable element of design. Hence the many important churches—Beverley, Salisbury, and Westminster Abbey among them—in which sculpture is almost altogether absent. The employment of the naked moulded capital, whose monotony is so conspicuous in these and many other buildings, bears witness to this, and bespeaks an imperfect conception of the Gothic idea. The great Gothic Cathedral, with its marvellous organic structure and its vast wealth of associated sculpture, has really no counterpart in England.

In Germany, as in England, comparatively little use was made of figure sculpture as a conspicuous architectural

adjunct. No ranges of statues adorn and animate the upper stories of the German façades; nor, in general, do they flank the great portals. The figure sculpture which in some instances occurs in these portals was mostly copied from French models, and it naturally partakes of the character that sculpture in France had assumed in the later Gothic epoch when the German copies were executed. The famous statues of the Cathedral of Strassburg, for instance, have a sentimental expression, caught from the later sculptures of France, joined with a realism that is more peculiarly German.

To the general absence of figure sculpture in connection with architecture even the Cathedral of Cologne affords no marked exception. The statues ranged in the jambs of its portals and against the faces of its buttresses give the ground-story, indeed, much the appearance of a French Cathedral; but above the ground-story level the structure is unadorned with sculpture save that of crockets and finials. Of the figure sculpture of the ground-story little need be said, as it is entirely of post-Gothic workmanship, and partakes rather of the character of the art of the Renaissance than of that of the Middle Ages.

For the distinctively German types of foliate sculpture we may take those capitals of the choir of Cologne which date from about the middle of the thirteenth century. Of these capitals, Fig. 159, p. 241, presents a fair example. It will be seen that the leafage has little architectural character, but that the over-naturalism, which belongs to the late foliate sculpture of France, reappears here with increased distinctness. All expression of sympathy with the functional office of the capital is wanting. This capital itself, as before remarked, is little more than a continuation of the shaft, and around it the elaborately wrought leafage is, with no inventive grace, entwined. If the late capitals of England are extravagant in artificial foliation, these of Germany are trivial in their naturalism, and remarkable for lack of monumental expression.

In Italy there was no figure sculpture of importance before that of Niccola Pisano—that is to say, not until considerably after the epoch of the most splendid development of Gothic sculpture in France. And when it became

important it was, from the first, different in character from the sculpture of the North. It was different primarily in being the production of individual sculptors working independently, rather than of a school or guild. The name of the sculptor of almost every important statue or bas-relief in Italy is known ; and even in cases of doubtful authorship the question, usually, is merely between one well-known master and another. To the great companies of workmen who, in France, wrought together for a common end—each one content to do his best work without thought of individual fame—there was hardly any parallel in Italy. And being an individual product, the work of the sculptor in Italy was naturally more independent of architectural connection than that of the Gothic sculptor had been. It never had such relationship with architecture as had existed in the French Gothic. The Italian regarded it rather as something to be particularly displayed than as a mere architectural auxiliary. Hence in Italy, statues, instead of being ranged in groups and connected with structural members, are put in isolated places ; they are set in niches, or under corbelled canopies which have no constructive purpose—as in the façade of the Spina Chapel at Pisa,—or they are employed as finials to gables, etc., while reliefs are commonly carved upon broad wall surfaces, as at Orvieto and in the Campanile of Florence. Thus, though often effectively placed, sculpture in Italy never becomes so intimately and consistently associated with the building as to form an integral part of it.

In this sculpture two quite distinct elements curiously mingle—the one that of expression, approaching in character the expression of Northern Gothic, and the other formal, resulting from study of the Roman antique. Of these two elements, sometimes one and sometimes the other predominates, according to the individual genius of the artist. For instance, in the famous, though, as I think, much overrated sculptures of the pulpit of the Baptistery of Pisa, by Niccola Pisano, the inspiration of Roman models is clearly manifest in the treatment of forms, while of natural expression there is little. In the art of Niccola the spirit of the Renaissance is already manifest, and the Gothic spirit is, for the most part, wanting. The figure of the vigorous young athlete,

called *La Forza*, which is placed against one of the angles of this pulpit, exhibits, in its pose and anatomical modelling, a purely classic motive which is far removed from Gothic feeling. And it is worthy of notice that the classic elements in this work differ widely from the classic elements that are present in French Gothic sculpture. In the one case they are imitative, in the other they are innate. In the one case they are superficial, in the other they are essential. The principles of ancient art were, indeed, no less familiar to Niccola than they had been to the Gothic carvers—they were probably more so,—but he did not, it would seem, in these sculptures of Pisa, work so much from his native instincts as from a spirit of conscious emulation of models that he had seen and admired. A passion for excellence of form, as displayed in these models, was apparently the ruling passion of the artist's mind. In the reliefs of the panels the characteristics of that Roman art, which was itself but a formal imitation of the Greek, is no less strongly marked. In the grouping and execution of these figures the sculptor has given us little of his own. He has followed his models closely. Not only are the types largely Roman, but even the peculiar conventions of treatment, in draperies and other details, are equally so. The redundance and artificiality of Roman design are reproduced with curious exactness. It is not, perhaps, strange that the Roman work, with which he was brought in contact, should so strongly have appealed to him. In comparison with the contemporary native art the carvings of the Greco-Roman Sarcophagi in the Campo Santo exhibit great superiority in the forms ; but it seems a little remarkable that an Italian in the thirteenth century should have been so far carried away with admiration of this ancient art as to allow so little of what was peculiar to mediæval Italian genius to express itself in his work. One looks in vain, in these reliefs by Niccola, for those refinements of conception and treatment which mark the works of his immediate successors. It is only in the rendering of animal life—in the beasts which support the pillars of the pulpit—that a living and original faculty is clearly apparent.

Few other early Italian sculptors were so strongly influenced by Roman art. The reliefs of Giovanni Pisano at

Orvieto are very different from those of Niccola at Pisa. In expression and in conception of form they approach more nearly to Gothic art. A strong influence of nature and a sense of beauty are apparent in them, and they exhibit little evidence of direct reference to ancient models. The same may be said of the panels of the Campanile in Florence, attributed to Giotto and Andrea Pisano. These reliefs differ in merit one from another. In mastery of the figure and refinement of execution few of them equal the best French sculpture of the early part of the thirteenth century; but some of the figures, as, for instance, the standing one in the relief which represents the art of weaving, are of unusual beauty.

After the Pisani the architectural character of sculpture, which is considerable in works like those last mentioned, gradually disappears until the later masters—Ghiberti, Donatello, Lucca della Robbia, and others—develop the art independently, and inaugurate the era of isolated statues on pedestals, movable busts, and medallions, which occupy so large a place among the works of art of the Renaissance.

Of foliate sculpture Italy produced little in the thirteenth century that is remarkable as compared with that of France. In the fourteenth century, however, there was much imitation of the work of the Gothic carvers of the North, and many rich designs were wrought which are remarkable for delicacy and beauty. The leaf sculpture of the door jambs of the Cathedral of Florence affords specimens of the best Italian work of this sort. The fig, the oak, and the ivy are there represented with almost Gothic feeling, and with true Italian refinement. But these carvings, though not wanting in architectural effectiveness, are rather over-naturalistic in treatment. The just mean between the architectural and the naturalistic was hardly ever reached by the Italians; they either cling too tenaciously to ancient conventions in ornament, or else they become too imitative in following nature. The close imitation displayed in the foliate ornament of Ghiberti's gates is but an extreme instance of the tendency that is generally apparent in Italian carving which deals with natural foliage.

In Venice, however, some admirable examples of foliate sculpture occur, of which the older capitals of the Ducal

Palace—especially those of the lower arcade, on the side toward the Piazzetta—are among the finest in the world.

There was never any important development of sculpture in Spain. The statues that adorn some of the Gothic churches in that country were, like the architecture itself, copied without genius from the sculpture of France. The figures of the portals of the Cathedral of Santiago, which are said to date from the close of the twelfth century, are among the most important, and are, according to Mr. Street, really fine. But the employment of such sculpture was not general even in the great Gothic buildings. The façade of the Cathedral of Burgos, for instance, has no figure sculpture whatever.

Foliate sculpture in Spain is no more original or important than that of the figure. The capitals and string-courses of the Gothic buildings exhibit French motives with little modification. The design of the cornice of the choir of Burgos, for instance, might have been taken directly from Paris or Amiens, as might also those of the capitals and bases which adorn the angles of the buttresses.

CHAPTER IX

GOTHIC PAINTING AND STAINED GLASS IN FRANCE

THOUGH colour was employed on many parts of the Gothic building, enlivening sculpture, and relieving plain surfaces by various ornamental patterns, the art of figure painting now became much less conspicuous and much less general than it had been, and than it still continued to be in the structures which were erected in those parts of Gaul which lay mainly outside of the region of the Gothic movement.

Yet wall painting was still more or less practised in the Ile-de-France, and some notice of this painting is therefore necessary to complete our study of the Gothic style. Unhappily no examples of wall painting in strictly Gothic buildings have been preserved uninjured, and such scanty and mutilated remains as those, for instance, in the transept of Noyon, and those in the wall arcades of the Sainte Chapelle at Paris, are insufficient to afford a clear understanding of their original character. But illuminated manuscripts of the time are abundant and well preserved, and from them, rather than from the almost obliterated examples of painting that are occasionally met with on the walls of churches, we may derive illustrations of this art.

Its character, as exhibited in these manuscripts, shows a very primitive state of pictorial development. Hardly more than the most elementary qualities of outline and colour are displayed; and these are, of course, ornamental rather than representative in motive. The drawing exhibits a curious mingling of archaic rudeness with much skill and freedom of line. In fact, as regards delineation of the figure and easy expression of move-

ment, the French painters developed a skill by the beginning of the thirteenth century that was not attained in Italy till its close; yet joined with this skill the conventions of immaturity are everywhere conspicuous. The modelling of form is very imperfect. Saliences are indicated conventionally by paling the colour, while depressions are expressed by deepening it. Of natural effects of light, or even of indication of the direction from which light falls, there are none whatever, nor is there any expression of cast shadows. Flesh is rendered of a creamy-white, with slight reddening of cheeks and lips. The features are drawn in with fine lines of brown or black, and a frank outline describes every contour, whether of general form or of detail. In the twelfth century the outline is brown, and both figures and backgrounds are generally light in tone, while in the thirteenth century the outlines become black, and backgrounds and figures become more intense in hue—possibly through the influence of the brilliancy of the stained glass which was coming into more general use than ever before.

Usually in the thirteenth century the backgrounds are quite flat, and they are generally either of an ultramarine blue or of a brownish-red. In some cases, as in Fig. 190, from the *Life of St. Denis*, a manuscript of 1252 in the National Library of Paris, figures are represented with no ground under their feet. No correct expression of different planes of distance, or of perspective, is attempted. Where one figure has to be represented behind another, the farther one is but partially drawn, like the farther horse in this illustration, which is represented without legs. The whole character of the work is thus essentially conventional and decorative, yet it is often both tender in expression and beautiful in design, and it rarely fails, in its various quarterings, to exhibit a fine harmony of colour combinations.

This painting is, of course, largely derived from the traditional art that had, from the earliest times, been cultivated by the various religious orders of Europe. But, unlike sculpture, which, as we have seen, was also largely derived from the same sources, it failed to develop new principles or characteristics of importance. Technically it remained for the most part stationary all through the Gothic period, owing, doubtless, to the fact that the main artistic

impulse of the time and the locality operated in the direction of an architectural development which was not favourable to the special development of painting.

In the fourteenth and fifteenth centuries painting as an art in France advanced rapidly under the influence of the example of the early Italian schools. But this painting had no connection with that Gothic architecture with which we are concerned.

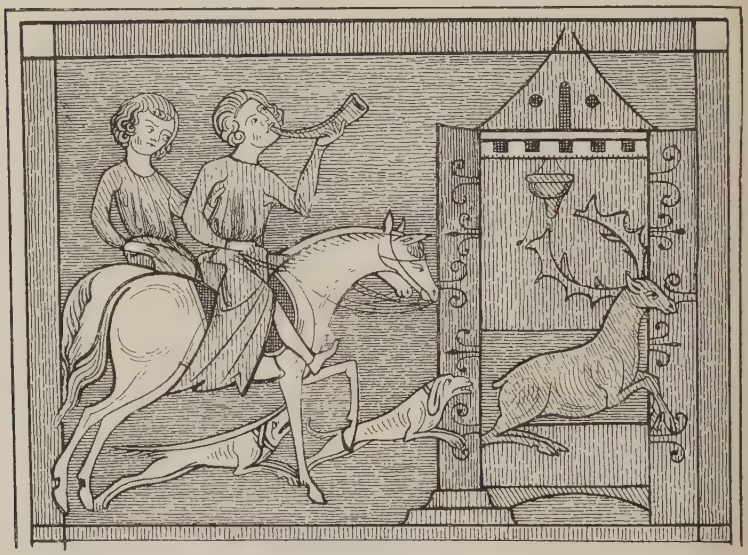

FIG. 190.

Gothic painting in France was thus of a very primitive and conventional kind, though it was not ill adapted to its purpose as associated with architecture. How far its conventions and archaisms were the mere imperfections of immaturity, and how far they may have resulted from a sense of architectural fitness, I do not attempt to decide; but, judging from what was at the same time accomplished in sculpture, it would seem that had painting received equal attention in the Gothic scheme, its severer conventions would soon have given place to a more developed style.

It was not, however, in the field of painting proper, but in that of stained glass, that chromatic design, in Gothic architecture where the great openings afforded ample

field that was denied to painting, reached its most splendid development.

Though simpler styles of this art had been practised earlier, in its full development it is peculiar to Gothic architecture. Small window openings were often filled with coloured glass in early Christian times. But the production of intricate designs, including rich patterns and figures, and the elaboration of them with details drawn with a pencil and afterwards burnt in, began in the Romanesque period, and was perfected in the early Gothic.

The inherent limitations of this art are indeed of such a nature as to confine its development within narrow lines. The material resources of the artist were limited to sheets of glass variously coloured while in a molten state by the use of metallic oxides. These sheets were cut up into the required shapes, and the pieces were fitted together, mosaic-fashion, to form the main design, while this patchwork of colour was supplemented by the very simplest delineation and rudest modelling by means of a pencil charged with a neutral pigment. It is plain that only a most conventional kind of art could be produced by such means. Yet with these materials the mediæval artist was able to work without embarrassment, and in the many examples of his skill which still remain we may see that he was no less unerring in his judgment, and constant in his obedience to the principles involved, than were, in their respective departments, the stonemasons and the sculptors.

The task of the designer in stained glass was, on the one hand, to subdue the light and give a comfortable sense of enclosure, and, on the other, to produce brilliant harmonies of translucent colours, and to add such pictorial interest as the conditions controlling his art would permit. The fundamental difference between this art and the art of wall painting is, of course, that in the one case light passes through the design everywhere, while in the other it falls upon its surface only. This difference separates the two arts by an impassable gulf. With wholly transparent media those scenic effects, which are dependent upon a greater or less development of light and shade, are impossible. In all arts the true designers willingly submit to the limitations which the nature of their materials imposes, and in no art

have these limitations been more strictly observed than in that of stained glass in the Middle Ages. In stained glass proper not only is colour necessarily employed in an almost strictly heraldic manner, but the conventions of line are of necessity peculiar. The main outlines of objects are not outlines only, they are also the framework of metal which, while following the contours of forms, has, at the same time, to perform the function of a sash, and hold in position the small bits of glass of which the design is made up. These lines formed by strips or bars of metal are therefore of necessity coarse beyond any used in even the most conventional wall painting. Within the great lines of the lead framework the artist does, it is true, give with the pencil more or less delineation of the finer details of his figures. By applying his neutral pigment either heavily or lightly, and by scratching out lights with the point of a sharpened stick, he can even get considerable gradation in his modellings. But in a general or distant view such elaboration counts for little, and he has to depend mainly for his effect on the coarse general outlines and the patches of flat colours. These peculiarities, growing out of the nature of the materials employed, are not properly to be regarded as imperfections, but as conventions marking the limitations of the art. And even the archaisms of drawing which characterise the figures represented (and which do not grow out of the material conditions, but are largely the imperfections of undeveloped graphic skill) accord so well with the unavoidable conventions that we can hardly conceive of their being changed with good effect.

The art of designing in stained glass would seem to be incapable of real development beyond the conditions that were reached in the Middle Ages. The more modern attempts to give it a wider range, by introducing a more pictorial character, bespeak an imperfect recognition of its inherent principles. In the twelfth century the various resources of overlaying and fusing, by means of which the colours are gradated and blended somewhat as in the art of painting proper, and which have been extensively practised since the fifteenth century, were wholly unknown, and would hardly have been welcomed.

In the apsidal chapels of the Church of St. Denis are

some fragments of stained glass dating from the middle of the twelfth century; and the Cathedral of Chartres retains, in almost perfect condition, some magnificent specimens of a somewhat later date in the same century. Among these last is the well-known Jesse window, which may be taken as an example of the best work of the time, or indeed of any time, for this art hardly advanced in any respect after the twelfth century, though it retained its high character nearly to the end of the century following. Fig. 191, a figure from this window, will afford an illustration of its character. The design is produced, for the most part, of pure pot-metal, while white glass is introduced here and there to heighten the effect in draperies and in ornaments. Each piece of glass is of one even colour, another piece has to be inserted wherever a different colour is wanted, and each separate piece is encompassed by its sustaining framework of lead. On various parts of the design thus wrought out of many small fragments the necessary details are drawn with the brush charged with the neutral pigment. By this means a simple suggestion of shading is given, though nothing like real modelling is ever, at this epoch, approached. The figures are small, rarely more than two and a half or three feet high, and the separate pieces of glass, of which the design is composed, are rarely more than six inches in greatest dimension.

FIG. 191.

The Cathedral of Chartres is almost unique in its wealth

of mediæval glass, nearly all of the original work of the twelfth and thirteenth centuries remaining in place, and, for the most part, in good condition. Though a fragile form of art, stained glass is, if undisturbed by accident or violence, one of the most permanent. But, unhappily, either accident or violence has despoiled the greater number of French cathedrals of the greater part of their ancient glass. Chartres, however, singularly fortunate in retaining its magnificent jewel-like window-screens, exhibits in its internal aspect, more than most other mediæval churches, the effect that it originally had.

Among other remaining examples of Gothic design in stained glass are the three magnificent roses of the Cathedral of Paris — those of the transept, and that of the west end, dating from the middle of the thirteenth century. Other fine examples of about the same epoch, though much restored at different times, are the windows of the Sainte Chapelle, and some of those in the Cathedrals of Bourges and Reims. As a general rule the effect of the French interior is now much injured by the extensive prevalence of modern *grisaille*, or, still worse, by wretched modern painted glass, in which the pictorial idea assumes an undue prominence, and the natural conventions and beauties of glass are lost.

CHAPTER X

PAINTING AND STAINED GLASS IN ENGLAND AND OTHER COUNTRIES

ALTHOUGH during the twelfth and early thirteenth centuries the art of painting on the walls of churches, and of otherwise employing colour in architecture, was extensively practised in all the countries of Europe, yet there was nothing in other countries of essentially different character from that which was produced in France. The tenderness of sentiment and elegance of design which give charm to the works of French genius were not, indeed, equalled in other countries; but in general principles the art was the same all over Europe until the close of the thirteenth century, when, in Italy, the great movement set in which ultimately led, in that country, to the highest developments of painting.

The earliest pictorial art in Italy was posterior to the epoch of strictly Gothic building in the North. But being associated with the early pointed architecture of the country, the beginnings of this art form properly a part of our subject.

Italian painting exhibits from the first, qualities which are hardly met with in the same degree of advancement in the Gothic of the North. Though the outline remains distinct it is less prominent than in France, and the marking of details is more delicate and finished. The elements of chiaroscuro and perspective, though very slightly and imperfectly suggested, are nevertheless present from the first. In fact, a more pictorial treatment is everywhere manifest. Moreover, an increase of skill in design and of elaboration

in treatment marks the individual character of the work; but it is not in technical points alone that the superiority of early Italian painting is apparent. The grace and sentiment of French design are often exquisite, but are less constant than in the work of the early Italian painters. The art of Cimabue at the close of the thirteenth century shows an improvement upon the severe conventions of French painting in the delicate gradations and pencillings which give a new touch of nature to flesh and to draperies; while the works of Giotto display the higher qualities of original genius, together with the imperfections which belong to an art in which entire mastery has yet to be acquired.

Among the earliest examples of mediæval wall painting in Italy are those of the Church of St. Francis of Assisi. The architecture of this church is, as we have seen, essentially different from the Gothic; without its paintings the interior effect would be bald in the extreme. The large wall spaces, the absence of great expanses of brilliantly coloured glass to offer trying competition with the quiet tones of fresco, and the sufficiency of subdued light, rendered this building as inviting to the mediæval painter as a well-prepared canvas is to a painter of modern times. But unlike the modern painter on movable canvas, the mediæval Italian, called to paint upon the walls of churches, had constantly forced upon his mind the monumental purpose of his art—an habitual reference to which naturally develops the grandest characteristics of painting. This purpose led him to regard his wall space as a field to be embellished with colour, and although he had also a didactic and representative intention, yet he instinctively felt that everything else must be subordinated to a decorative scheme. His panel had primarily to be divided into fields of colours, whose arrangements should produce bright and harmonious effects which should be pleasing to the eye when regarded without reference to any pictorial design. But, in addition to this ruling ornamental motive, the intention of telling a story through a life-like rendering of figures and other objects was constant in his mind. The scenic representation at which he aimed was in no degree antagonistic to decorative effectiveness. In fact, as a general principle, there is far less

antagonism between what is decorative and what is scenic in painting than is sometimes supposed.[1]

The essential elements of decorative effect and of pictorial truth are to some extent even dependent the one upon the other. For instance, the preservation of local hues throughout the great masses of a design, by the avoidance of neutral shading, which truth to nature demands, secures at the same time the full decorative value of every colour field. The mediæval Italian always preserved his local hues, both from a habit of pictorial veracity, and from a true decorative instinct. Hence the wall painting of Italy in the Middle Ages was as decorative and monumental in character as that of the Northern Gothic, while it became much more developed and beautiful as painting.

From the time of Cimabue to the time of Botticelli, the decorative idea ruled everything else in pictorial design. The constant habit of painting on walls gave something of a monumental character to even small panel pictures, and to this is largely due their essential beauty. To a certain extent, indeed, all good painting has the decorative character of monumental art. That is to say, a basis of harmonious

[1] I think that M. Viollet-le-Duc, in his article *Peinture*, errs greatly in maintaining that the principles of pictorial and of decorative art are opposed the one to the other. I do not find that any such antagonism has apparently been felt to exist between them in the minds of the greatest painters of the past, whose art has been at once decorative and pictorial in purpose.

M. Viollet-le-Duc, on p. 61 of his article, refers to the arts of the Egyptians and Persians as illustrating the true principles of decorative art, and to the works of painters like Titian and Rembrandt, as illustrating those of pictorial art. But the author fails to recognise the fact that the art of Titian, like that of every great colourist, is in certain fundamental principles of design allied very closely to the more purely decorative arts of Egypt and Persia. The more commonly appreciated pictorial qualities of Titian's painting constitute but a small part of his art, which is strictly based upon principles of colour relations similar to those which give charm to the work of the Persian weaver. The author's objection to all pictorial treatment on the ground that the perspective which it involves calls for a single point of view, and is not only not architecturally effective, but is even injurious to architectural effect, is, I think, urged too strongly. The eye naturally makes large allowance in this regard. Very rarely are any pictures viewed from the precise point for which their perspectives are calculated; but if only the broad colour masses are fine and well disposed, a picture will always be broadly effective in its decorative qualities, however it may be viewed.

How far, in painting, natural modelling, chiaroscuro, and perspective are compatible with the best architectural effectiveness I do not attempt to determine. But certainly the line between what is decorative on the one hand, and what is pictorial on the other, cannot properly be so sharply drawn as it is by M. Viollet-le-Duc.

design underlies all other qualities in the works of great painters. Mere life-like figure painting is not, in the best sense, art at all. But so long as the idea of beautiful design governs, all the qualities required for the representation of nature may be carried very far, with good effect, even in decorative wall painting. In the mediæval Italian schools scenic representation (though always subordinated to monumental exigencies, and never pursued in the modern manner) was ever being advanced farther and farther. In fact, the progress that was made in these schools, from the time of Cimabue to the time of Raphael, was a progress in truth of rendering almost altogether. In fundamental principles of design the art of Giotto is not inferior to that of any subsequent painter in Italy. It is in little more than skill of drawing and modelling that the art of Raphael, for instance, surpasses that of Giotto. Pictorial treatment may undoubtedly be carried too far for monumental effect; and though the limits of such treatment in wall painting may be difficult to define with precision, it may safely be said that it is always carried too far when mere representation becomes the leading motive of the painter. With the mediæval Italians it was never carried to this extent. The monumental idea was always dominant. In the frescoes of the Church of St. Francis of Assisi this was conspicuously so. The elements of representative painting are here so slightly developed as to remove the work but little in character from that of the Northern Gothic. In general effect it produces little other impression than that of a bright colour embellishment, though attentive examination reveals many subtleties of development that Gothic painting hardly ever exhibits. It is the same with the frescoes of the Spanish Chapel in Florence, and even with the paintings by Ghirlandajo in the choir of Sta. Maria Novella, though the pictorial skill in these last is much further advanced. In Giotto's frescoes in Sta. Croce the modelling of flesh and draperies is often remarkably natural, while those of Massaccio in the Carmini, and those of Lippi in the choir of Prato, are highly and exquisitely elaborated.

It is true, however, that mediæval wall painting in Italy, while always monumental in character, was treated

as an important independent mode of expression as well as an architectural adjunct. Hitherto its technical and pictorial qualities have chiefly occupied the attention of connoisseurs of painting, and far too little respect has as yet been paid to its no less important architectural purpose, without a recognition of which its complete character cannot be understood. The spirit of the Renaissance—from which we have largely derived our habits of thought in matters of art—was that of a time of severance of the arts which in earlier times had always been intimately associated; and the disposition to regard painting too much as an independent art of expression has made it difficult for the critics of the Renaissance and of recent times to comprehend it in its relation to the other arts of the Middle Ages.

In stained glass there were no peculiar styles either in England, Germany, Italy, or Spain. The use which in Romanesque times had everywhere been made of this mode of filling in apertures continued in each of these countries during the Gothic period. In many cases fine examples of Gothic glass design were executed, especially in England and Germany, but they were always more or less directly copied or imported from France. Good examples in England occur in Canterbury and Lincoln as well as elsewhere; but nowhere save in France was there, in this art, an active spirit of original invention, nor was there anything in the character of the architecture to stimulate its production. In England, as we have already seen, the east end of the church alone had an opening on a really large scale; and even here several narrow lancets often took the place of the single large opening.

CHAPTER XI

CONCLUSION

THE foregoing examination and comparison of the pointed architectures of the different countries of Europe will be seen, I think, to afford a serviceable, though it be not an exhaustive illustration of the peculiar nature of Gothic architecture, and to throw light upon its origin. The true nature of this architecture has not been generally understood, mainly because the fact was not recognised that its distinctive characteristics were not arbitrary inventions but were based on principles deduced from practice, and determined by the laws of mechanics governing the structure. Our examination of these principles reveals the existence of a great class of buildings which display a perfectly distinctive character, and are confined, for the most part, to one closely circumscribed region. In this region a logical growth, from the earliest germs, of the principles of Gothic art may still be traced. Elsewhere we find buildings, in all cases later in date of erection, which exhibit many apparently kindred features, but which, in hardly any case, completely display in their structure the same distinctive system, and in many cases do not display it at all. In France, and in France alone, is the system complete and the development apparent. There alone are the successive steps of change spontaneous and connected, and there only does the inventive spirit of the builders manifest the character of a general movement.

And what the architecture itself shows is borne out by the inferences which the respective conditions of the different countries, in the twelfth and thirteenth centuries, naturally suggest. In France, as I have before remarked, the ethno-

logical character of the people was such as to render them the most artistic race of Northern Europe, while their social and political conditions were most favourable to artistic production. The force of natural aptitude, the spirit of national unity as well as of communal independence, and the comparative freedom from ecclesiastical restraints, were all highly conducive to the exercise of that artistic genius which, during the period in which Gothic architecture was developed, was passing from the clergy to the laity. And in addition to all this the native rock-beds furnished better materials for building than were generally accessible elsewhere.

In England at this epoch the conditions were very different. Prior to the Conquest no architecture on a great scale existed, though there were the elements of a style which might, doubtless, in time have grown into importance. By the Conquest the progress of this art was naturally checked, and was for some time held in abeyance by the fact that the conquerors took care to place a prelate or an abbot of their own race at the head of nearly every diocese and monastic institution. No admixture of complementary elements gave to the people what their purely Teutonic nature lacked in the direction of artistic aptitudes. The Norman infusion, after it really took place, did much ; but the Norman race was itself too near of kin to introduce such new elements as were required for a fresh life of art.

After the oppression of the conquerors had in a measure ceased, and the fusion of the two races had so far proceeded as to remove the old distinctions between Normans and English, and produce somewhat of common national feeling, the conditions for the growth of a national art were still far less auspicious than they were in France. No free communities like those of the Continent existed. The Commune in England had not the same character and meaning that it had in France. It was not, as in France, a great centre of independent life, where the arts might naturally become the enthusiastic concern of large bodies of laymen working in the municipal employ. Ecclesiastical corporations and private individuals alone, under the Crown, held in England the powers that in France were possessed by the Communes.[1] Hence the cathedrals here did not generally spring up as

[1] Freeman's *Norman Conquest*, vol. v. ch. xxv.

central objects in active towns; but they were placed often in more or less out-of-the-way places, and in connection with monastic establishments. Salisbury, Wells, Ely, Peterborough, Worcester, Canterbury, and many others remain to this day surrounded by little more than country villages; while even York and Lincoln arose in connection with the Bishops' sees rather than with the towns in which they were situated. The spirit of popular enthusiasm of which the Abbot Haymon writes,[1] had no counterpart in England. Building was here much more exclusively in charge of the clergy, regular and secular. Among them, indeed, there was often no lack of zeal. Bishop Hugh of Lincoln is said to have assisted with his own hands in the erection of his splendid choir; and record is not wanting of many other similar instances. But no general popular activity in connection with the building of churches, like that which prevailed in France, was called out.

The architecture of the twelfth and thirteenth centuries in England differs, therefore, from the Gothic of France in being largely of foreign rather than native origin, and in being ecclesiastical rather than popular.

Yet the native genius was by no means wholly or permanently inactive. It was rather quickened and improved. It did not, however, exercise itself independently, but it was acted upon by that of the foreign settlers, and in turn it reacted upon them. This reaction was in fact so strong that Norman art, which was chiefly developed on English soil, became widely different from what it would have become had the Conquest never taken place, and had its development been confined to the duchy of Normandy. But the English influence upon Norman art was not so much fundamental as superficial. It affected the details alone rather than the structural principles of building. And of both Norman and Anglo-Norman art it must be said that they would never have become what they did had not French influence been exerted upon them. The Normans in Normandy had so far assimilated French ideas and feelings as to have become almost Frenchmen.

[1] The well-known letter of the Abbot Haymon, of St. Pierre sur Dive, written in 1154, gives a most striking account of the religious enthusiasm which possessed all classes of people, and the material assistance which they voluntarily rendered towards the progress of the church edifice.

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They had, in their arts, imbibed as much of the French spirit as was possible to the Northern nature; under French influence they had learned to build, and they came with their growing arts into England, where by degrees they mingled, in character, in customs, and in arts, with the native race much more completely than they had mingled with the French.

For two hundred years after the Conquest the dominant elements in architecture were decidedly Norman. The Cathedral of Salisbury, the nave and transept of Wells, and the Presbytery of Lincoln, among others, are substantially Norman buildings, differing, as we have seen, from buildings of the earlier Norman style in little more than the substitution of pointed arches for round arches, and in the modification of ornamental details. This architecture cannot, therefore, be properly called English. It is strictly an Anglo-Norman architecture.

Of the two elements, English and Norman, which mainly constitute the English race, the English has, in the long run, proved the stronger; and it has, since the thirteenth century, held the ascendant in arts no less than in institutions. The character, however, that has been impressed upon architecture, since this ascendency became active, is by no means so admirable as that which it had before. The perpendicular style, which alone, since the Conquest, is entitled to be called, in the restricted sense, an English art, is certainly neither Gothic, nor at all comparable in merits to the architecture which it superseded.

In Germany the conditions in the twelfth century were far less favourable than even in England to the formation of a style like the Gothic. The grand Romanesque architecture of the country was, in the main, a native style, and fairly well suited to the conditions of climate and of taste. The Germans showed little disposition to change radically this style, and had little need to do so. The inventive genius of the people was naturally less quick than that of the French; and no event, like the Norman Conquest of England, occurred to infuse foreign ideas, and stimulate to new artistic enterprises. Under these circumstances the Gothic of France had, for a long time, little effect on the architecture of Germany. And when finally it did begin to have effect,

it was rather as a model which it seemed desirable to copy, than as an influence quickening new invention.

Whatever may have been thought of the pointed architecture of Italy, few have supposed that there was ever any original development of the Gothic style in that country. The large infusion of foreign blood through the various incursions of the Northern races had been absorbed into purely Italian veins. Italian tastes, traditions, and needs were all favourable to the ancient forms of building, which were their natural inheritance; and in the revival of the arts, after the stagnant period which followed the downfall of the ancient civilisation, it was not only natural that the Italians should have recourse to these ancient forms, but that they should permanently retain a preference for them.

The Italians of the Middle Ages were never constructive builders. The Romanesque architecture of Italy (excepting always the semi-Teutonic Lombard-Romanesque) was not an organic style. The Cathedral of Pisa, for instance, though subtle in its proportions, and beautiful in its details, is almost as childish in construction as a house of toy-blocks. Its superposed colonnades are without organic connection; and its whole system is one that could give rise to no further developments. A comparison of Pisa with the nearly contemporaneous Cathedral of Durham will show how widely the Italian Romanesque system differs from that rudimentary organic system which contained some of the most potent germs of the Gothic style.

There can certainly be no question, on the score of social or political conditions, with regard to an original development of Gothic art in Spain. The Christian civilisation of the country was, from the time of the Moorish invasion, far too warlike and unsettled to admit of such development, even had the ethnological constitution of the race been favourable. Of all the nations of the West the Spanish, in the Middle Ages, were the least advanced in those conditions of political and social organisation, and of intellectual and moral life, which favour the development of the fine arts.

It does not, then, from historical considerations, any more than from those which the buildings of the different

countries themselves suggest, appear that Gothic architecture arose either in England, Germany, Italy, or Spain; but everything points clearly to France as the locality of its origin, and the only locality of its full and distinctive development.

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